THE READER

A REVIEW OF LITERATURE, SCIENCE, AND ART.

No. 91, Vol. IV. Saturday, September 24, 1864. { Price Fourpence; Stamped, Fivepence.

HOLMAN HUNT'S PICTURES. "London Bridge on the Night of the Marriage of the Prince and Princess of Wales," and "The Afterglow in Egypt," together with Robert B. Martineau's Picture, "The Last Day in the Old Home" are now ON VIEW, at the NEW GALLERY, 16, Hanover Street, Regent Street, from Nine in the Morning till Ten at Night. Admission during the day from Nine till Seven, One Shilling; and in the evening from Seven till Ten, Sixpence.

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3. Natural History—By T. H. Huxley, F.R.S.
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6. Geology—By A. C. Ramsay, F.R.S.
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Instruction in Mechanical Drawing, by Rev. J. Haythorne Edgar, M.A.

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Tickets to separate Course of Lectures are issued at £3 and £4 each.

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C. W. MERRIFIELD, F.R.S., Principal.

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The Lords of the Committee of Council on Education have determined, after communication with the Admiralty and the Institute of Naval Architects, to open at South Kensington a School of Naval Architecture and Marine Engineering, for the instruction not only of Admiralty pupils from the Royal Dockyards and officers of the Royal Navy, but also for the use of Naval Architects and Ship-builders in wood and iron, Marine Engineers, Foremen of Works, Shipwrights, and the public generally.

The Admiralty have deposited their Collection of Naval Models at the South Kensington Museum, and private shipbuilders have contributed to the collection.

The School will have a yearly Session at South Kensington of six months, from November to April.

The fee for the full course of instruction will be £25 for each Session of six months, or £60 for the course of three years.

Four free studentships will be given in competition if qualified candidates enter, and to the two best of these scholarships of £50 per annum.

The subjects of the competitive examination, with the number of marks attached to each, will be as follows:—

*Pure mathematics, including arithmetic, geometry (plane and descriptive), trigonometry, and the elements of the deferential and integral calculus	2500 marks.
*Theoretical mechanics, or applied mathematics	1000 ,,
Practical mechanics	750 ,,
Practical shipbuilding	2000 ,,
Steam	750 ,,
Physics	500 ,,
Chemistry	500 ,,
Mechanical and freehand drawing	750 ,,

* In these subjects at least half marks will be required.

The competition this year will take place before Christmas. Students must have entered the school, and paid the fees, to be eligible to compete, and the fees will be returned if the student be successful. The syllabus of the subjects, except practical shipbuilding, is given in the Directories for Science and Navigation Schools. All communications to be addressed to the Secretary, South Kensington Museum, W.

THE NATIONAL ART TRAINING SCHOOLS at SOUTH KENSINGTON for MALE and FEMALE STUDENTS will RE-OPEN on MONDAY, the 3rd of OCTOBER. For Information respecting Fees, &c., apply to the Schools, or to the Secretary, Science and Art Department, South Kensington, W.

By Order of the Lords of the Committee of Council on Education.

BATH MEETING OF THE BRITISH ASSOCIATION.—At the close of the Meeting of the British Association in Bath, the *Bath Daily Chronicle's* Special Reports of the Sections, Soirées, Meetings, Excursions, Banquets, &c., will be reprinted in Book Form, royal octavo size. The Volume will be bound in an Illustrated Cover, and will form the completest and most compact Record of any Meeting of the Association yet published. It will be dedicated (by permission) to Sir Charles Lyell, Bart., President of the British Association. A Portrait of Sir Charles Lyell (after a photograph by Mayall) will be the frontispiece of the volume. Price 5s. Orders received at the *Chronicle* Office, Bath.

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	£	£ s. d.	£ s. d.
441,411	92,540	222 4 4	120 19 2
450,156	12,000	63 0 0	35 0 0
484,173	6,800	35 14 0	19 16 8
506,975	5,000	7 10 0	4 6 4

THE RATES OF PREMIUM ARE IN NO CASE HIGHER than those charged by the other principal offices giving no Bonus to their Insurers.

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The Business of the Company exceeds Seventy Millions, and, owing to the liberality with which its engagements have been performed, is rapidly increasing. The duty paid to Government for the year 1863 was £84,152. 11s. 9d.; the amount insured on Farming Stock was £10,203,272.

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For Prospectuses apply to the Society's Offices, 29, Fleet Street, E.C.; and Surrey Street, Norwich.

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And has returned to members, in reduction of their annual premiums 630,000

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Sept. 5, 1864. HENRY MARSHAL, Actuary.

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1000	43	85 2 0	30 1 8	3 5 3
600	27	38 12 0	10 2 0	0 16 9
500	50	42 16 0	17 8 4	2 5 4
100	44	7 13 0	2 15 6	0 6 1
50	66	7 2 0	3 14 4	0 17 2

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THE READER.

SATURDAY, SEPTEMBER 24, 1864.

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FRANCE UNDER THE RESTORATION.

THE sway of Napoleon I. brought upon France the burden of three or four coalitions, and resulted in the battle of Waterloo. France, antecedent to 1814, was without liberty, without a constitution, without any guarantee against the will of a mere military despot. The country was in a far worse position than in the reign of Louis XIV.; for then there was a certain freedom of the press and of society, and the instinct of chivalry and honour had yet a potent sway. But, in 1813 and 1814, Frenchmen were, to use the language of Alfieri, but "Tartari infranchisati," to be held in leash or to be let loose according to the caprice, the bidding, or the wicked will of a successful despot. Happily this state of things had an end, and France recovered her usurped liberties in 1814, and again, after the one hundred days, in 1815. But it cannot be concealed that the state of literature in the ten years between 1804 and 1814 was deplorable. Châteaubriand and Madame de Staël were under ban, and during portions of the decade in exile, and all independent exercise of thought or expression was visited with disgrace. Madame de Staël, in one of her best works—her "Dix Années d'Exil"—has described, in glowing language, and with great felicity of diction and illustration, the persecutions to which she was subjected—persecutions mean and revengeful, which exhibit Napoleon in a light odious and malevolent.

The conduct of Louis XVIII. in exile as Count de Provence had been exemplary for years, and, when restored, he gave the solidest proofs of moderation and good-sense. Instead of governing in arbitrary and military fashion, he gave to the French a constitution in which the liberty of worship, of the press, and of speech were acknowledged and consecrated. The descendant of a hundred kings—the successor of Pharamond, of Charlemagne, and of St. Louis—consented to reign as a limited monarch, with balanced and divided powers and popular guarantees. Though 150,000 emigrants and reactionists, and clouds of bigoted priests, were at liberty to return to France, yet Louis XVIII. held on in his just and impartial course, and was not to be moved from his purpose by Ultramontanes or ultra-royalists. Amidst conflicting factions, he chose his different ministers from amongst the most enlightened and conciliatory of public men; and the result was that, apart from parliamentary contests, he reigned quietly and successfully for ten long years. He was opposed and thwarted by men more royalist than the king, and more Romish than the Pope of Rome; but, notwithstanding these political and religious reactions, the old king held firmly to moderate, tolerant, and liberal views. He enlisted the ablest men to be found in the country in his service, and, notwithstanding strong personal prejudices against both, availed himself of the talents and experience of Talleyrand and Fouché, Pasquier, Baron Louis, Simeon, Mounier, De Serres, Lainé, and De Cazes. Roy held, at various periods, portfolios, and Lainé and Royer Collard presided over the Chamber of Deputies. Nine or ten of Napoleon's marshals—namely, Ney, Berthier, Suchet, Massena, Oudinot, Mortier, Soult, Macdonald, and Gouvion St. Cyr—were made peers; a universal amnesty was proclaimed; and the country continued to be governed by the Code Napoléon. The government of Louis XVIII. strenuously exerted itself to put down the massacres of Nîmes; and no one in his dominions was more opposed than the king to the sanguinary proceedings of the ferocious Trestaillon. It was not likely that the Count of Provence, who passed for a philosopher and an *esprit fort* in 1770, would, nearly half-a-century afterwards, encourage the erection of Calvaires and Prie-dieus. But the ultra-royalists and the Ultramontanes, when they acted in unison, were occasionally stronger than the supporters of the government. From the year 1820 the health of Louis XVIII. was visibly declining; and his decease took place on the 16th September, 1824. For a long while he resisted the administration of extreme unction; but at length the Camarilla succeeded in introducing a priest—not, however, of their own selection, for the king would only consent to receive an humble and tolerant *curé*, whose worth he had known and appreciated. To his brother, Monsieur, —soon to be Charles X.—he said: "In the midst of hostile parties I have tacked like Henry IV.; and the consequence is that I die in my bed." Louis XVIII. was a man of a moderate and passionless nature, of a clear and cultivated intellect, and of great tact and discretion. He was humane, moderate, benevolent, and wise; and France enjoyed, for the ten years of his reign, as much liberty as was compatible with circumstances, and a great deal of material prosperity.

The deceased king was a man of varied attainments and elegant scholarship. No one in his dominions knew Horace better, and he translated with spirit some of the satires of the Roman poet. Louis XVIII. was a noble and royal author, but little can be said in praise of the "Journal to Ghent." It was in his correspondence that the king exhibited the taste, scholarship, and neatness of style of which he was master. Nothing can be better than some of his letters to his "cher D'Avary," to Blacas d'Aulpes, to his favourite De Cazes, and to Madame du Cayla, his *chère amie*. These last productions exhibit a grace and gallantry quite savouring of the old Court. There are the happiest turns and collocations of phrase, and that tone of the *vieille cour* now but a faint tradition of the past. No such letters passed in his younger days between the king and Madame de Balbi; for that boisterous beauty "avait l'habitude de se moquer de son royal amant."

The conversational powers of Louis XVIII. were remarkable. He spoke his language with purity, and possessed a rare dignity and fascination of manner. Under his reign literature revived. Châteaubriand, though not in favour with the monarch, contributed largely to periodical literature, and De Barante, Michaud, Lacretelle, Benjamin Constant, Guizot, St. Aulaire, Etienne, Jouy, Jay, and De Martignac (afterwards Minister of Charles X.) exercised their pens in history, memoirs, political dissertations, and literary criticism. Lamartine and Victor Hugo started into literary life at this period, and Lammenais, afterwards so famous, became generally known to the Parisian public. As critics and political writers, De Sacy and St. Marc Girardin now won their spurs.

The first years of the reign of Charles X. passed over tranquilly. The monarch was personally popular; for he was a frank, amiable, and dignified gentleman, fond of field-sports and manly exercises. But his besetting weakness was to be governed by the priest-party and the Jesuits. A ministry of religion was created, of which an ecclesiastic (Monseigneur de Frassynous) was the head. *Billets de confession* became the order of the day, and confraternities of all kinds, male and female, greatly multiplied. The press, too, was fettered and impeded by the law mockingly called the "Loi d'amour et de justice." These reactionary measures might have been uncomplainingly borne had not Prince Jules Polignac, a favourite of the king, been recalled from the French embassy in England to fill the place of first minister. M. de Polignac was entirely ignorant of public feeling and public opinion in France, from which country he had been long absent. His course was wildly reactionary, and, in the first flush of the successful expedition to Algiers, the fatal *ordonnances* were issued which cost Charles X. his crown. It is unnecessary to go over the events of the three days of July, or the expulsion of the aged monarch from a kingdom over which he had reigned for six years. Charles X. was a man of narrow intellect, but sincere convictions. He thought that his cause was the cause of God, of the throne, and of the people, and he doubtless believed that he was acting within the 14th Article of the Charter. But in this view he misjudged and was mistaken; and he paid the penalty of his error dearly. But, now that the grave has closed over his remains for years, history must admit that he was no sanguinary tyrant, but a man of narrow views, rash resolves, and the sincerest convictions. Though his government was not in harmony with the spirit of the times, yet he was not a vulgar despot or a ferocious tyrant, but a monarch whose extreme views of the royal prerogative were tempered by the feelings of the gentleman and the man of honour.

Charles X. was not a patron of letters or of literature, yet, under his reign, Salvandy, De Broglie, Mignet, Thiers, Cousin, Villemain, and Jules Janin became renowned as literary and political writers, and De Balzac and Scribe amused the town as novelists and dramatists. Under Charles X.'s reign there was freedom of speech and action in the Palais de Justice, and the bar was illustrated by such men as Berryer, Berville, Hernequin, Mauguin, Barrot, and an advocate who has since become recreant to his principles —Dupin Ainé.

In the "Memoirs of a Minister of State" M. Guizot ably treats of the reign of the successor of Charles X.—Louis Philippe. The great defect of the work is that the personal pronoun is somewhat too prominent; yet, in the main, it is a fair, though somewhat partial, history of a remarkable, a peaceful, and a progressive reign.

Louis Philippe was a person of immense experience, intimately acquainted with the courts and cabinets of Europe, and possessing great knowledge of men and of public affairs. But he was essentially a *bourgeois*, and a temporizer timid in his policy and character; and his great object was to manage France by his personal system. In this for many years he completely succeeded—not only reigning, but governing; but, as he grew older and more successful, his views were too exclusively directed to the aggrandizement of his own family. This was the rock on which he ultimately split; for the Spanish marriages, in dissolving the English alliance, were the precursor of his ruin and of the events of February 1848. No man for eighteen years did more to develope the industry and resources of France than the Citizen-king. He encouraged railroads; he promoted commercial and speculative industry; he created canals, bridges, harbours, and

dikes, and enlarged and beautified Paris. But, in thus fostering material interests too exclusively, he stimulated a sordid and corrupt spirit; and the public feeling and morals became depraved by a too exclusive worship of Mammon. But, irrespective of these errors, it cannot be denied that during his reign France enjoyed peace and prosperity, and, what is of more account, eighteen years of constitutional government, with a free press and a parliamentary system. Eloquence, poetry, history, and all the liberal arts flourished side by side with constitutional freedom; and the names of Casimir Perier, Molé, De Broglie, Guizot, Thiers, De Remusat, De Tocqueville, among politicians and statesmen; of Berryer, Montalembert, Dufaure, Mauguin, and Barrot among orators and debaters; of Châteaubriand, Villemain, Cousin, De Barante, Mignet, Victor Hugo, and Lamartine among men of letters; and of Bertin, Etienne, Carrel, De Sacy, Ste.-Beuve, Nisard, and St. Marc Girardin among journalists, sufficiently prove that France was not only constitutionally free, but instinct with a vigour, a vitality, a mental energy, and a genius for which we look in vain at the present time.

Louis Philippe was a lover of letters and of literature. He wrote himself with purity, ease, and correctness, and was ever forward to encourage and assist struggling talent. Literature occupied a position and was fully represented under his government; but, since February 1848, it cannot be denied that literature and letters have declined in France. The present Emperor of the French has been a contributor to journals, and also a somewhat voluminous writer. But he has not hitherto favoured and protected the liberty of the press or encouraged literature as he has encouraged industry and material speculations. The first volume of his life of Cæsar is now said to be nearly ready. In virtue of this work he aspires to be created a member of the French Academy; and, as such, it may be hoped, if not expected, that he will be converted to saner and more liberal views.

France for a quarter of a century has been daily becoming more sordid, selfish, and covetous; and when a people is growing corrupt, as Bolingbroke says, "there is no need of capacity to contrive, nor of insinuation to gain, nor of plausibility to seduce, nor of authority to impose, nor of courage to attempt. The most incapable, awkward, ungracious, profligate, and timorous wretches invested, and masters of the purse, will be sufficient for the work when the people are accomplices in it; the more it is fed, the more profuse it will grow. Want is the consequence of profusion, venality of want, and dependence of venality. By this progression the first men of a nation will become the pensioners of the least, and he who has talents the most implicit tool to him who has none." When a free people crouch like camels to be loaded, the next at hand, no matter who, mounts them, and they soon feel the whip and spur of their tyrant. If things, however, go on in France as they have done for the last twelve years, "old men will outlive the shame of losing liberty, and young men will arise who know not that it ever existed."

CURRENT LITERATURE.

A LITERARY FRAGMENT BY HAWTHORNE.

Pansie: a Fragment. By Nathaniel Hawthorne. (Hotten.)

IF we were the stage-managers of a theatre, we should make it a rule never to raise the curtain after it had once fallen on the "dénouement" of a play. There is something strangely unsatisfactory in that short passing glimpse you catch once more of the actors whose power has just riveted your attention. They stand in the same attitude as that in which they stood before the curtain fell; they wear, or try to wear, the same expression on their faces; and yet, somehow or other, the life has gone out of them. It is not the living passion that we see again, but a faint pallid likeness of the scene so present to us. So, in much the same fashion, we have always doubted the expediency of literary raisings of the curtain after the play is played out to the end. The attempt to call back once more the image of a great writer who has gone to his account, by placing before us some unfinished fragment of a work with which his dying hands had busied themselves but yesterday, is almost always a failure. The words are as the words of the author we have known and honoured; but the voice — the spirit of those words — is as the voice of a stranger. They are sad reading, for the most part, those incomplete efforts of dead genius. Their memory haunts you afterwards, like a riddle you cannot solve—a puzzle you cannot put together. But yet, to those who have known the writer, either by fond study or by personal knowledge, there is a strange attraction about these waifs and strays of his literary legacy. You know they will not satisfy you, and yet you cannot help devouring them; you know they will leave you hungrier than before, and yet you cannot rest contented without hunting after them.

Thoughts somewhat after this fashion must, we think, rise unbidden to the minds of all who, having known Hawthorne, have read "the last literary effort," as it is called, of the first of American novelists. "Pansie" is not only the fragment of a novel; it is a fragment of its first chapter—an incomplete sketch of one character alone in the untold story. In order to eke it out to a size that could decently be sold for sixpence, the publishers, whether on this side the Atlantic or the other, have added to it a sort of essay upon Hawthorne, written apparently by a medical man whom he consulted shortly before his death. If they wished to show by contrast the charm of the great word-master's writing, they could not have chosen a better example than the essay which prefaces the fragment. It is written in the worst style of American fine writing—and that is saying a good deal. Fancy any one who had ever known Hawthorne—who understood the clear, shrewd sense, the contempt for cant, and the nervous horror of affectation which were as characteristic of him as his rich wayward fancy—saying "that talking with him was almost like love-making; and his shy, beautiful soul had to be wooed from its bashful pudency like an unschooled maiden." If anything, we think, could disturb that weary spirit in the rest he had earned so well, it would be to hear spoken over his tomb twaddle like this, which is written about his burying-place:—

> In a patch of sunlight, flecked by the shade of tall, murmuring pines, at the summit of a gently swelling mound, where the wild-flowers had climbed to find the light and the stirring of fresh breezes, the tired poet was laid beneath the green turf. Poet, let us call him, though his chants were not modulated in the rhythm of verse. The element of poetry is air; we know the poet by his atmospheric effects, by the softening of every hard outline he touches, by the silvery mist in which he veils deformity and clothes what is common, so that it changes to awe-inspiring mystery by the clouds of gold and purple which are the drapery of his charms.

And so on "usque ad nauseam."

However, even out of this essay there may be derived something which throws light upon this quaint literary fragment so full of beauty—so full, still more, of sad pathos. Authors, as a general rule, bear very little likeness to the ideal personages whom their readers fancy they must resemble. But Hawthorne was an exception to the rule. His writings were the written expression of his own character. It was impossible to understand the man unless you knew his works well; it was difficult, we think, to understand the works unless you knew something of the man also. This was because, in all his writings, he reproduced his own image. All true humorists have done so, from Shakespeare downwards. Thus, in every one of Hawthorne's characters, you see the delineation of what he fancied he himself would have been under the condition of life and temperament which he presupposes for the actor in his story. And thus, too, in all his estimates of men, there is found that wonderful tolerance which to many minds seemed like scepticism. Throwing himself, as he sought to do, into the minds of others, he judged them as men judge themselves; as Shakespeare and Balzac and Thackeray judged the world, seeing much evil in all good, and some good in all evil. The almost morbid self-contemplation caused by this frame of mind is visible through all Hawthorne's writings. He is always seeking to solve the problem, what, under given conditions, would be his own feelings, and thoughts, and actions; and his novels are, in consequence, a reproduction of his inner, though not his outer life. Of this tendency "Pansie" is, we fancy, a marvellous specimen. When he wrote it he was in his sixtieth year. It is now two years since he was seen by the writer of these lines, and even then it was evident that the vigour of life's prime was fast departing from him. He was old before his time; worn out by the wear and tear of a mind too sensitive for this working world—out of harmony with the circumstances in which his lot was thrown. The fever of this passionate war-time in the North wearied without exciting him. It was his misfortune that he could not cordially sympathize with any party in the great struggle, and that yet, always doubting what was for the best, he felt the sorrows of his country with a bitterness all the greater that it was scarcely tinged with hope. If what we have heard be true, the last two years had aged him quickly; "he seemed," so the writer of the preface says, "to have shrunken in all his dimensions, and faltered along with an uncertain, feeble step, as if every movement were an effort." We cannot be wrong, we think, in considering that, in the fragment before us, Hawthorne sought to depict his own feelings as he found that he was growing old. Pansie is an orphan child, left to the charge of an aged great-grandfather, who has outlived his allotted time, has survived wife, friends, children, grandchildren — every connexion in the world except this one baby.

> Little Pansie was the one earthly creature that inherited a drop of the Dolliver blood. The Doctor's only child, poor Bessie's offspring, had died the better part of a hundred years before; and his grandchildren, a numerous and dimly remembered brood, had vanished along his weary track in their youth, maturity, or incipient age, till, hardly knowing how it had all happened, he found himself tottering onward with an infant's small fingers in his nerveless grasp. So mistily did his dead progeny come and go in the patriarch's decayed recollection, that this solitary child represented for him the successive babyhoods of the many that had gone before. The emotions of his early paternity came back to him. She seemed the baby of a past age oftener than she seemed Pansie. A whole family of grandaunts (one of whom had perished in her cradle, never so mature as Pansie now, another in her virgin bloom, another in autumnal maidenhood, yellow and shrivelled, with vinegar in her blood, and still another, a forlorn widow, whose grief outlasted even its vitality, and grew to be merely a torpid habit, and was saddest then)—all their hitherto forgotten features peeped through the face of the great-grandchild, and their long inaudible voices sobbed, shouted, or laughed in her familiar tones.

Of the child itself we hear next to nothing. All the few pages of this story that have come down to us are occupied in the sketch of old Grandsir Dolliver; and in him we find, or fancy that we find, traits without number of the Hawthorne whom we knew. Who that recollects the carelessness—never, though, degenerating into slovenliness—of his daily attire but can understand how, on rising in the morning, he was "disheartened by the idea of those tonsorial, ablutionary, and personally decorative labours which are apt to become so intolerably irksome to an old gentleman after performing them daily and daily for fifty, sixty, or seventy years, and finding them still as unmitigably recurrent

as at first." Who, too, that ever talked with him in his bright moments and saw the vigour of that great powerful mind, weak only by its excess of strength, but can understand how the contrast between his failing bodily strength and his growing force of intellect must have struck Hawthorne as a subject for anxious, painful self-study. Nothing to us can be sadder than the picture conjured up by the following words:—

This weight of years had a perennial novelty for the poor sufferer. He never grew accustomed to it; but, long as he had now borne the fretful torpor of his waning life, and patient as he seemed, he still retained an inward consciousness that these stiffened shoulders, these quailing knees, this cloudiness of sight and brain, this confused forgetfulness of men and affairs, were troublesome accidents that did not really belong to him. He possibly cherished a half-recognised idea that they might pass away. Youth, however eclipsed for a season, is undoubtedly the proper, permanent, and genuine condition of man; and, if we look closely into this dreary delusion of growing old, we shall find that it never absolutely succeeds in laying hold of our innermost convictions. A sombre garment, woven of life's unrealities, has muffled us from our true self, but within it smiles the young man whom we knew; the ashes of many perishable things have fallen upon our youthful fire, but beneath them lurk the seeds of inextinguishable flame. So powerful is this instinctive faith that men of simple modes of character are prone to antedate its consummation. And thus it happened with poor Grandsir Dolliver, who often awoke from an old man's fitful sleep with a sense that his senile predicament was but a dream of the past night; and, hobbling hastily across the cold floor to the looking-glass, he would be grievously disappointed at beholding the white hair, the wrinkle and furrows, the ashen visage and bent form, the melancholy mask of Age, in which, as he now remembered, some strange and sad enchantment had involved him for years gone by!

Ideas such as these must have been Hawthorne's own as he watched the scant, wavy locks of hair that floated around his noble brow growing daily grayer and the wrinkles in his furrowed cheek becoming daily deeper.

We have a fancy also, from a few words dropped here and there, that, if "Pansie" had even been completed, we should have found that Grandsir Dolliver's declining years were sorely perplexed and troubled by the events of the American uprising against the rule of the old mother-country. And, if so, we can fancy dimly how Hawthorne would have described his own feelings under circumstances not altogether dissimilar—how he would have dwelt upon the overthrow of every cherished association which such a war entailed upon a man too old to share in the passion of the hour, too weary to long for anything but peace and rest.

The fragment ends abruptly in the middle of a sentence, but yet so appositely that we almost doubt whether the revisers of the unfinished sketch may not have ended it purposely where they have. If not, it is pleasant to us, as to all who knew the writer, to think that his last written utterance should be one of hope and gentle gladness.

Yet there were moments, as many persons had noticed, when the great-grandpapa would suddenly take stronger hues of life. It was as if his faded figure had been coloured over anew, or at least, as he and Pansie moved along the street, as if a sunbeam had fallen across him, instead of the grey gloom of an instant before. His chilled sensibilities had probably been touched and quickened by the warm contiguity of his little companion through the medium of her hand, as it stirred within his own, or some inflection of her voice that set his memory ringing and chiming with forgotten sounds. While that music lasted, the old man was alive and happy. And there were seasons, it might be, happier than even these, when Pansie had been kissed and put to bed, and Grandsir Dolliver sat by his fireside, gazing in among the massive coals, and absorbing their glow into those cavernous abysses with which all men communicate. Hence come angels or fiends into our twilight musings, according as we may have peopled them in bygone years. Over our friend's face, in the rosy flicker of the fire-gleam, stole an expression of repose and perfect trust that made nim as beautiful to look at, in his high-backed chair, as the child Pansie on her pillow; and sometimes the spirits that were watching him beheld a calm surprise draw slowly over his features and brighten into joy yet not so vividly as to break his evening quietude. The gate of heaven had been kindly left ajar, that this forlorn old creature might catch a glimpse within. All the night afterwards he would be semi-conscious of an intangible bliss diffused through the fitful lapses of an old man's slumber, and would awake, at early dawn, with a faint thrilling of the heart-strings, as if there had been music just now wandering over them.

Surely we may hope that the night which preceded the morning when they found Hawthorne dead in his bed, with a smile upon his face, had been one visited with such "glimpses of an intangible bliss" as hovered at times round the dreams of Grandsir Dolliver. E. D.

MODERN ROME.

Rome under Pius IX. By S. W. Fullom. (Skeet.)

WE have of late been deluged with books descriptive of modern Rome and modern Roman life. Several of these are works of high merit, and would seem to leave little for any after-comer to glean. We have had Mr. Story's two picturesque volumes, describing the scenes and sights of the Roman streets with the true artist-soul and the familiarity resulting from lengthened residence. Mr. Dicey's book is the production of a keen observer and a good narrator. Mr. Burgon has brought out, as they have never been brought out before, the aspects of religious life and the results of priestly rule, and he has shown very admirably how superior the Anglican ritual is, in beauty and catholicity, to that of Rome. Dean Alford's denunciations of Romish superstition have been read by the hundred thousand readers of *Good Words*, and are certainly not lacking in vigour, deficient though they may be in charity. In "Le Maudit" the inner mechanism of priestly tyranny is exposed by one who has a practical knowledge of the matter which no English Protestant could ever be permitted to acquire. And, lastly, some of the most charming scenes of "Barbara's History" are laid in the Eternal City and among the olive-crowned slopes of the Alban Hills.

Sketches of Roman life having, of late, been so numerous and so well executed, it would seem that no room was left for any fresh adventurer in this department, unless possessed of some unusual power of description or some unwonted acquaintance with the subject. Mr. S. W. Fullom possesses neither of these qualifications: he appears to be a mere bookmaker, capable of carrying a Murray under his arm and of writing slipshod English with some facility. It having been "proposed to him that he should write this book," he appears to have proceeded to Rome for a few weeks, and then to have written down and published his crude impressions.

The one great merit of the book is that it is very short. The genius of bookmaking, aided by the devices of a small page, double "leads," and wide margins, has, indeed, expanded the little rivulet of type into 312 dreary pages; but, according to a calculation which we have taken the pains to make, the whole volume might be easily reprinted in four pages of the *Times*.

The great characteristics of the book are flippant comment and that vulgar fanaticism which cannot tolerate any mode of religious thought or any form of worship except that to which it happens to have been accustomed. Mr. S. W. Fullom cannot understand any adaptation of religious forms to the varying requirements of different nations. A stern Puritanical baldness in ritual and architecture — no music and plenty of whitewash — seems to be his ideal of æsthetic perfection in such matters. He wishes Christian ministers to be clad in the garb worn by the Apostles, and Church appointments to be conformed to the model of the "Upper Room" at Jerusalem. The swinging of the "censors" (*sic*) and the choristers in the gallery suggest to him that "religion is not a matter of taste, but of appointment. It must be what Heaven ordained, or it is nothing; and the thought of that 'upper room' reminded me of the simple service I had attended in the morning, in the room outside the city, and made me look on this picture and on this."

A mind of such narrowness cannot be expected to have much room for intellectual furniture. The Bible, Murray's Handbook, and Shakespeare seem to be nearly the limit of his reading; and he naively endeavours to establish the prevalence of certain Italian customs by a reference to "Romeo and Juliet" and "The Two Gentlemen of Verona." He has also read the first book of Livy; and, although he has rejected with scorn all the traditions relating to Christian sites, he believes firmly in the local associations connected with Romulus and Remus, and Tarpeia, and Numa and his nymph! He will not listen to any suggestion as to the untrustworthiness of the earliest Roman chronicles, because, forsooth, "the voice of our nature speaks in the record and attests its truth" (p. 33). "Such a story [as that of Tarpeia] is its own voucher"! (p. 34.)

The book is a perfect treasure-house of bad English. We have, for example, such expressions as "the whole population *swarm* the esplanade, and troop through the walks" (p. 116), and "the streets *throng* with brigands, whom the Bourbon has brought in his trail, and who are here organized and equipped, *when* they are poured over the frontier to destroy" (p. 79). The logic of the following passage is worthy of its language and its charity:—

The miscreants [*i.e.*, the penitents who come to confess to the grand Penitentiary] *often* show the brand of Cain on their brow, nature speaking in their lineaments, and making them be themselves a warning, so that they image deadly murder, spoil, and villany. Such attendants there *have been* in former years; but I watched some time, and saw no representative of the tribe, nor did any come forward this year, as far as I could learn (p. 211).

Comment on this is as superfluous as it would be impossible.

Mr. Fullom's prose is bad enough; but, when he gives us his verses, we confess that our patience fairly breaks down. We conclude our extracts with a choice specimen of our author's poetical talents:—

'Tis well to make of night a door,
And with the hours to panel o'er;
But such a night as this should close
Where only Love and Peace repose.

A fitting sentinel aloft,
The Air, in form of zephyr soft;
The fishers watches o'er the sea,
And Earth's ripe vintage and its glee.

We must apologize to our readers for having devoted so much space to such a worthless book; but the interests of literature demand the exposure of such incompetence. Mr. S. W. Fullom, after "five-and-twenty years of literary toil," is probably, by this time, quite incorrigible, and, judging by his abuse of the "literary journals" (p. 261), he seems heretofore to have been dealt with according to his deserts. The remedy lies, therefore, with the public, not with ourselves. If people will continue to buy such books, such books will continue to be written.

THE CHANGES OF OUR GLOBE.

La Terre avant le Déluge. Par Louis Figuier. 4me Edition. (Paris and London: Hatchette et Cie.)

La Terre et les Mers; ou, Description Physique du Globe. Par Louis Figuier. 2me Édition, Revue et Augmentée. (Paris and London: Hachette et Cie.)

AMONG the able men of all countries who are usefully devoting their lives to the advancement of science, no mean place is due to M. Louis Figuier, although we are not aware that he has distinguished himself by any original discoveries. But science may be materially aided in its progress by other efforts than those which tend directly to the enlargement of its boundaries; for it is

like a great commonwealth in the manifold diversity of the services by which it thrives. Those rendered to it by M. Figuier exhibit him in the double capacity of an excellent chronicler and an agreeable and quite trustworthy expounder of scientific facts and doctrines to the unlearned. The series of volumes which he has produced year by year since 1858, under the title of "L'Année Scientifique et Industrielle," is in all respects an admirable example of what such works should be. As a collection of materials for the history of pure and applied science during the period of which it treats, it is more useful than any other contemporary collection of French documents, not excepting even the Memoirs of the Académie des Sciences. In another series of annual volumes, entitled collectively "Tableau de la Nature," M. Figuier addresses himself to the young, and unfolds successively to them, in a manner adapted to their capacity, the principal scenes, objects, and phenomena of some department of the material universe. The form is a large octavo, elegantly printed and abundantly illustrated. The two named at the head of this article have already appeared; another, "Les Plantes," is announced as in the press, and will be followed by others on zoology, the microscopic world, and astronomy. The treatises now before us have all the charm that clearness of style, excellence of method, and knowledge culled from a sound and plenteous store can give them. Science itself cannot but be a gainer by works which are so well adapted to increase the number of its intelligent admirers.

The issue in no less than two years of four editions, amounting together to twenty-five thousand copies, is a signal testimony to the favour with which "La Terre avant le Déluge" has been received. For a popular work on science this, we are assured, is a success unprecedented in France; and that it is well deserved is incontestable. Being the first book of its kind of any mark which has appeared in France, the most eminent geologists and palæontologists of that country seem to have regarded it as a national work, and to have aided with alacrity towards perfecting it as a popular introduction to the sciences they profess. A very interesting feature in the book is the series of ideal landscapes contained in it, representing the forms of animal and vegetable life which prevailed in each geological period. Separate portraits are also given of the larger extinct animals and trees, and more than common care has been taken to state the scale upon which each figure of a fossil has been drawn. There are many books in which this care has not been observed; and, for want of it, their readers are often in danger of making gross mistakes as to the size of natural objects—of supposing that one of the foraminifera, drawn on a magnified scale, is as big as an ammonite, a pterodactyle as a plesiosaurus, &c.

All things considered, the first volume of "Tableau de la Nature" is perhaps as nearly as possible what it professes to be—a faithful, though summary sketch of the present state of the science of geology. The only important omission we notice in it is, no doubt, due to the progressive nature of the subject and to the time occupied in the passage of the work through the press. Let us hope that a demand for a fifth edition will soon enable the author to describe his Laurentian rocks, and thus enrich his volume with what is *now* the last grand geological discovery.

"La Terre et les Mers," though complete in itself, is properly a sequel to "La Terre avant le Déluge." Whilst the latter tells the story of the successive phases which the earth passed through during the geological ages, the former describes the actual result of the forces then in operation, and instances effects of their modified action at the present day. Though written expressly for readers the least versed in physical lore, it may be read with pleasure and profit by many a more advanced student; and even those who may find in it little that is absolutely new to them will often be interested by the happy treatment of topics with which they are familiar. Occasionally our author treats us to items of news properly so called, some of which we imagine may be still unknown even to newspaper-readers of great assiduity. He tells us, for instance, that facts were observed early in the present year which seemed to indicate that the little drowned island of Ferdinanda or Julia is rising again from the bottom of the Mediterranean, and is already not far from its surface.

This Ferdinanda, or Julia, as it was called by the French, was the summit of a submarine volcano, which suddenly emerged from the water between the 12th and 18th of July, 1831, mid-way between the island of Pantellaria and the little town of Sciacca on the south-west coast of Sicily, and in a right line which may be drawn from Pantellaria through Sciacca to Etna. Pantellaria and all the other small islands that stud the sea between Sicily and Africa are of volcanic origin, and connected with Etna. Ferdinanda evidently belonged to the same system; and its sudden appearance created a great commotion not only in the scientific, but even in the political world. "What means this strange and unexpected phenomenon?" was the question ever present to the anxious minds of King Ferdinand's subjects. "Is the route between Italy, North Africa, and the Levant, already so difficult, about to become more so? What if this newly-emerged land is but the first visible point, the first link in a long submarine chain which will soon come to the surface and form a natural bridge connecting Sicily with Africa? Are the Straits of Messina about to become what the Dardanelles are for the Black Sea, and thus revolutionize the mutual relations of the nations of Europe and Africa?" In short, was there not reason to see in this portentous event the prelude of a great geological catastrophe? Whilst Italian minds were revolving these painful thoughts, the *savants* of all Europe urged their respective governments to send out scientific expeditions to examine the new formation. That of France responded to the call with the promptitude and efficiency it is wont to display in such cases; but the English did more than this, to the great disgust of their neighbours, for they took formal possession of the subject of inquiry, in the name of arrogant and all-grasping Albion. But they did not long enjoy their usurped rights; for two months afterwards the island of Ferdinanda disappeared beneath the waves—for the purpose, as the Sicilians alleged, of escaping from English domination.

What if Ferdinanda should change her mind, resume her insular position, and permanently retain it? To whom will she then belong? Whether to England, as having been already annexed to her empire, and having voluntarily returned to her allegiance after playing the truant for a few decades? Or to the king of Italy, as being formed out of the bowels of the land that owns his sway? Or to the first power that shall plant its flag on the island as a new and virgin land? Such a claimant might plausibly contend that the second Ferdinanda, though occupying the same position as the first, was by no means identical with it, but was an altogether new and distinct issue from the abysmal storehouses. The island of 1831 had crumbled down to its base, and its *débris* had doubtless been swept out into the Atlantic by the submarine current that drains off the superfluous water of the Mediterranean through the Straits of Gibraltar. Much might be said upon each of the three questions we have suggested; and, if ever it is to be said at all, we pray, for the sake of our distressed brethren of the newspaper press, that the occasion for saying it may arise in the season of their extreme need—the present Parliamentary recess.

What is the cause of the saltness of the sea? A famous answer to this question is known to the readers of Dr. Dasent's delightful volume of Norse tales. It is that Frodi's magic mill, which could grind whatever you pleased without your putting anything into it, was carried off by the sea-rover Mysing, who set it to grind salt and did not know how to stop it. So grind it did, till the ship sank with the weight of the salt; and it is grinding away to this day at the bottom of the sea. In M. Figuier's childhood the answer given him to the same question by his sea-going friends was infinitely less poetical, but quite as absurd; not more absurd, however, as he alleges, than the theories which some *savans* have advanced on the same subject—such as that salt is spontaneously produced in the sea, that it is the accumulated sum of small contributions from rivers, &c. His own explanation of the phenomenon in question is as follows:—

> In the early times of our planet, before the watery vapours contained in the primitive atmosphere had been condensed and had begun to fall in boiling rain on the globe, the outer shell of the earth contained an infinite variety of heterogeneous mineral matters, some of them soluble in water, others insoluble. When the rains fell for the first time on the burning surface of our planet, they took up all the soluble matter; and, thus charged, they gathered together and accumulated in great depressions of the soil. Such was the origin of the seas of the primitive globe, which were nothing else than the rain-waters collected in a vast basin and holding in solution everything which the earth, washed by the rains, had given up to them. Sea-salt, sulphates of soda, magnesia, potass and lime, silica in the form of soluble silicate—in a word, all the soluble matters which our globe can supply formed the mineral contingent of those waters. Now, if we take into consideration that there has been no change in the general laws of nature from the geological era to our own days, and that the soluble substances contained in the waters of the primitive seas have remained in them because they are not volatile, and because the fresh water of the rivers constantly supplies the place of the water which the oceans lose by evaporation, we shall have accounted for the saltness of the sea. This is a very simple theory, as the reader perceives; but we have nowhere found it enunciated, and accordngly we claim to be responsible for it. Chloridei of sodium is by no means the only substance dissolved in the waters of the sea. Along with it they contain a multitude of other mineral substances; and the saltness of the sea is not to be understood of kitchen salt alone, but of all the soluble salts of the globe. We have already said that, besides salts, the waters of the sea contain a great variety of metals in infinitesimal proportions. That this must necessarily be so is evident when we consider the saline contents of the sea as the product of the general lixiviation of the globe which took place in geological times. . . . Everything that is soluble is in the sea.

The mineral wealth which rivers contribute to the sea in greatest abundance is insoluble. It is that *detritus* of all the solid materials of the globe which constitutes their mud. May it not be practicable to intercept a considerable portion of the vast wealth thus lavished upon the barren deep and apply it to the fertilization of the land by means of artificial irrigation? In the present state of engineering science it is surely possible to imitate upon a grander scale than has yet been attempted the example offered us by nature in the valley of the Nile. With this view, as our author informs us, M. Hervé Mangon has made important observations on the mud of French rivers, and another engineer, M. Duponchel, has proposed, in the present year, to fertilize the Landes by means of artificial torrents to be formed at the foot of the Pyrenees. W. K. K.

THE POSSESSIVE AUGMENT.

An Inquiry into the Character and Origin of the Possessive Augment in English and in Cognate Dialects. By James Manning, Q.A.S., Recorder of Oxford. (Trübner & Co.)

WHETHER agreeing or not with the learned author of this essay in the views he entertains of the origin of the apostrophized *s*—for it is this which he calls the possessive augment—one cannot but acknowledge the spirited manner in which he has taken up and re-examined a question apparently set at rest by "public opinion." Whoever, in matters of practical life, in the valuation of things or men, has at any time courageously faced that nondescript thing called public opinion must be well aware of

its chameleon-like nature, and will easily appreciate the reluctance felt by an independent mind like that of Serjeant Manning to bow to the dictates of anything so slippery in character and changing in colour. If it assumes the shape of a scientific dogma, it is generally marked with the epithets "obvious," "indubitable," or some such word, quietly impugning the capacity of the person who does not see its obviousness, and therefore trying to shame him into silence and submission. The apostrophized *s*, or, as it is usually called, the sign of the possessive case, is one of those "obvious" questions of English grammar. An American "Grammar of English Grammars," which says that "*public opinion* is now clear in the decision that it is *expedient* to assign to English nouns three cases and no more," adds, "the *possessive case* has occasioned no less dispute than the objective. On this vexed article of our grammar *custom* has now become much more uniform than it was a century ago; and *public opinion* may be said to have settled most of the questions which have been agitated about it. Some individuals, however, are still dissatisfied. In the first place, against those who have thought otherwise, it is determined, by infinite odds of *authority*, that there is such a case, both of noun and pronoun. Many a common reader will wonder who can have been ignorant enough to deny it."

Now Serjeant Manning is one of those "still dissatisfied individuals;" he apparently does not care for "the infinite odds of authority," and also seems to have that wholesome contempt for the "common reader" which in his eighty-third year rouses him "to show the unsatisfactory nature of the arguments by which the opinions popularly entertained on the character and origin of the possessive augment are commonly supported," and to attack "a system which still parades its formidable list of protectors in high places."

Apart, therefore, from the scientific value of the pamphlet which calls forth these remarks, there is a moral lesson taught by it, which, we hope, will not be lost in the present condition of English philology, and which, proceeding from a mind matured in legal reasoning and in the study of English literature, is as valuable, if not more so, than the mass of learned material which Mr. Manning has brought to bear on the defence of his theory.

Before, however, we express our view of the result at which he has arrived, we must briefly state the position he has taken, and the principal arguments with which he refutes the received opinion that the apostrophized *s* "is the bodily continuation, in an unbroken descent, of the Anglo-Saxon genitive case."

After an elaborate definition of the cases in which the apostrophized *s* is used in modern English, and of the power which it conveys, he proceeds to show that, during "the greater part of the thirteenth century, the genitive in *s*, when used in a possessive sense, was superseded by the pronoun '*his*,' and also that the mutilation of 'his,' in the form of '*is*,' '*ys*,' '*s*,' by which the original '*his*' was gradually superseded, had not, at the period of the later version of Layamon's Brut (*i.e.*, about 1300), come into general use." According to his view, therefore, whatever be the original value of the Anglo-Saxon genitival *s*, the modern apostrophized *s*, or that dating from the sixteenth century, would not be the representative of the A.S. *es*, but an attenuation of the "*his*" of the thirteenth century. This is the ancient pronominal theory, which he defends against the Wallisian or possessive-adjective, the Johnsonian or genitive case, and Bishop Lowth's or the double genitive case, theory.

The proofs which Mr. Manning adduces in favour of the pronominal theory bespeak an extensive and careful study of early English literature, and are, by far, the most valuable material which we remember to have seen collected on the subject. The most curious illustrations given by him are those exhibited in two tables presenting a comparative view of the genitive case terminations employed in the earlier version of Layamon's Brut, or about 1200, and of those occurring in the later version of the same work, assigned to the latter part of the thirteenth century. The following few may serve as instances:—

c. 1200.	*c.* 1300.
Howell*es* dohter.	Howel *his* dohter.
After Gorloi*ses* wiue.	After Gorloys *his* wifue.
Imong Childrich*es* teldes.	Among Childrich *his* teldes.
An Morgan and Cunedagies heond.	In Morgan and Cunages *his* hond.

In cases like these the pronoun *his* refers to a noun of the masculine gender; but that the same pronoun was likewise applied to feminine nouns Mr. Manning shows from comparative examples like these:—

At there dic grunde.	At thare dich *his* grunde.
Thissere nihte forste.	To this night *his* forst.
A sainte Trinetth*es* nome.	In seinte Trinity *his* name;

dic (=dike), nighte and seinte being feminine; or

Jerusalem quene.	Jerusalem *his* cwene.
An al for Wenhavere lufe.	For Gwenayfer (Arthur's queen) *his* love.

This very important fact, which removes one of the chief objections that might be raised against the identification of '*s*, when added to feminines, with *his*, he strengthens, moreover, by a number of other cases, which prove that, at an early period, feminine nouns were represented not only by "she," but also by "he" and "it;" as in the following instances:—

Emme the quene of England that *he* hyder vende (Robert of Gloucester, Chron., vol. i.) That kynges dogter as *he* was (*ibid.*) He swore it sholde nought be lette that if she have a daughter bore that *it* ne sholde be forlore, and slain (Gower, vol. ii.)

For want of space we pass over the objections which Serjeant Manning raises against Bishop Lowth, and Wallis, who, quite gratuitously, assumes that, by adding '*s* to a noun, the latter becomes metamorphosed into a possessive adjective; man's nature, for instance, being, according to him, literally the same as *humana natura*. We must point out, however, the principal arguments which he brings forward against the Johnsonian, or genitive case theory, since it is the prevailing one. Amongst these we should place in the first rank his remark that in Anglo-Saxon the termination *es* was never used in any feminine genitive, or in any plural genitives of any gender; whereas, it is needless to say, modern English speaks alike of "a mother's house" and of "men's labour."

A second class of his objections relates to the use of both the Anglo-Saxon genitive and the supposed genitive formed by '*s*. If this '*s*, he argues, were a genitival affix, and descended from the Anglo-Saxon *es*, the case represented by nouns formed with it would have the same power, and be used in the same way, as the Anglo-Saxon genitive; but an inquiry into its real power and use leaves no doubt that such a conclusion would be fallacious. Thus, in Anglo-Saxon, the genitive is both subjective (as in *thyses mannes sunu*, this man's son) and objective (as in *Godes lufe*, the love of God); but, in English, the so-called genitive is only subjective; for God's love is not the love of God, and France's king of Spain—to use Mr. Manning's instance—is not a king of France ruling over Spain, but, as, during the Spanish succession war in the beginning of the eighteenth century, might have been said of Philip of Anjou, the candidate for the Spanish throne in whose claim France had an interest. On the other hand, there are numerous cases in which the apostrophized *s* imparts to the noun that bears it a notion which could neither be rendered by the Anglo-Saxon genitive nor by the English paraphrastic genitive formed with *of*. Thus, in "Cæsar's crossing the Rubicon," *Cæsar's* is not tantamount to "of Cæsar," but to "by Cæsar," and, therefore, not the representative of a genitive, but of an instrumenta case.

These arguments, we hold, speak forcibly against the assumption that there is an identity between the Anglo-Saxon genitival *es* and the apostrophized *s*. For to suppose that, in the general wreck of inflections, one only, the *es*, survived, and that this *es* or '*s*, which Anglo-Saxon only applied to some masculine and neuter nouns in the singular, was ultimately appended indiscriminately to nouns of all genders, and in the plural, too, —such an hypothesis would be without any linguistic parallel: it would be neither supported by cognate languages nor by the general substitution, at a late period, of the plural termination *es* for the Anglo-Saxon *en* —since, in the latter case, an existing plural ending merely became generalized without losing anything of its original character or value, whereas, on the admission of the former theory, a new ending would have been created for feminine and plural nouns, and the old ending would partly have lost some of the properties which it possessed, and partly have been endowed with other properties which it never owned before.

So far, therefore, we believe Serjeant Manning has made out a strong case against the Johnsonian theory. But, had he pursued the physiology of the apostrophized *s* still farther, we think he would not only have strengthened his vantage-ground against the Johnsonians, but also perceived the flaws in his own theory.

He could not have failed to observe, for instance, that the fact of a language, in its analytic period, replacing all the endings of its oblique cases by their prepositional values, and yet retaining one of those original endings by the side of its prepositional substitute, is against all linguistic analogy. If an analytic—that is, a modern—language of the Indo-European stock preserves an organic ending, it does not, besides, evolve the original idea conveyed by it into an independent substitute; and, conversely, if it adopts the process of analysis, it foregoes the organic termination then no longer understood. On the assumption, therefore, that forms in '*s* represent a real genitive, English would be an isolated exception to the rule; it would possess and understand its organic genitive and, nevertheless, have created a prepositional genitive. Nor could it be said that both genitives serve different genitival purposes, and that, for this reason, the language indulged in a double genitive. For, though the so-called genitive in '*s* is generally defined as the possessive case, it will not be denied that the prepositional genitive is likewise fitted to convey the notion of ownership. "The house of the father" implies quite as much as "the father's house" that the father is the possessor of the house. The difference between both phrases and others of a similar kind—so well, and, we believe, for the first time so accurately, defined by Mr. Manning—lies in the greater intensity conveyed by the latter phrase; but intensity is not a quality exclusively belonging to the notion or notions expressed by a genitive. Language may combine it with other cases, too; and that English really does so follows in some degree from another class of examples alleged by our learned author.

Another point which we might have suggested to Mr. Manning in support of his criticisms against the genitive case theory is implied by the nature itself of an organic inflection-ending. Such an ending is the clear exponent of the relation in which a word formed with it stands to other words in a sentence. It follows, therefore, that, in languages possessing organic inflections, the position of the inflected word in a sentence is not rigorously fixed, as is the case in languages where no inflection-ending determines the relation of one word to another, and where, as a consequence, this relation has to be inferred from the syntactical arrangement of the words. Though it is certainly true that, in Greek and Latin and other inflectional languages, the position of inflected

nouns in a sentence is not absolutely arbitrary, and that a deviation from the order conventionally fixed would not be without a concomitant influence on the sense which they would convey in their conventional order, it is nevertheless certain that the absence of ambiguity, as resulting from inflection-endings, imparts to words possessing them a syntactical freedom which cannot be enjoyed by words devoid of them and inflected by the aid of prepositional appendages. This general law applies, as a necessary consequence, also to the Anglo-Saxon genitive. Where such a genitive, for instance, is governed by a noun, we find it sometimes preceding and sometimes following the "dominant noun." Thus, on the one hand, we meet with *heofenan rices myrhthe* (the joy of the kingdom of heaven), on the other, with *cynning heofones* (king of heaven), or with *Ádames gylt*, and with *tha gesælthæ ure sawle* (the happiness—accus.—of our souls), or with *thæs modes eagan* (the eyes of the mind) and *mid hluttrum eagum his modes* (with the pure eyes of his mind). The syntactical position, however, of its supposed English heir is absolutely stationary: it cannot even boast of the limited freedom of a prepositional case, nor profit by as much as a poetical license which may assign even to a rigid accusative an exceptional place. It must always precede the governing noun. It would be, in short, if identical with the Anglo-Saxon genitive in *es*, an inflectional case, minus all the essential properties of such a case; and, if an inflectional case, miraculously preserved, as an isolated exception, in the midst of an organism of prepositional declension, it would have syntactical properties wholly antagonistic to those of the prepositional cases which never precede the governing noun.

It is this syntactical position, however, which, in our opinion, reveals the true character of the apostrophized *s*, and compels us, too, to object to the explanation offered by Serjeant Manning, in his learned pamphlet, as to its origin.

Where a noun, governed by another noun, is absolutely compelled to precede the governing noun, their relation admits, in the Indo-European languages, we hold, but of one explanation. They are *bases* which have combined to form a unity which we generally call a compound. But, inasmuch as there are unities differing in quality and intensity, and as the speaker's conception of a unity, too, must influence its quality or intensity, the grammatical *formation* of compounds will likewise reflect a greater or less intensity. In inflectional languages the rule is that an ordinary compound-unity is represented by a juxtaposition of the *crude forms*, two or more, which form the compound—since a grammatical unity is represented by an independent or *inflected* word, and a crude form indicates that it merges its potential independence into that to be created by the whole compound word. But it then also follows that the governing noun, being logically superior to the governed noun, must stand near that portion of the compound word which is capable of being the bearer of the inflection-endings, or the exponent of the new independent unity; in other words, that the crude form of the governed noun must precede the crude form of the "dominant noun." Compounds, therefore, in which the governed noun retains its case-affix (as in *triumvir-i*, Διόσκουροι, ορεσίτροφο-ς), or where it follows the governing noun (as in Λυσίμαχος, *tire-bouchon*, pickpocket), are imperfect compounds, since they do not fulfil the real idea of a compound-unity. Yet, on the other hand, there are compound-unities, too, which languages capable of a full development in compounding words intend especially to emphasize, and which they then cannot produce merely by a juxtaposition of crude forms. Such *intensified* compound-unities we meet in language where the compound is intended either to *emphasize* the combined ideas of the crude forms, or where the idea expressed by the compound may be *inferred* from the ideas expressed by its component parts, but is not necessarily their result—where, in short, a new idea is the upshot of the compound-unity. A language as perfect and systematic in its development as Sanskrit, for instance, exhibits many methods by which it distinguishes such intensified compounds from common or unemphatic compounds. One of its methods is that of linking together the component bases by means of an *s*, which probably is an abbreviation of *sam* = συν, "with, together;" and this same means is, in modern languages, extensively used—amongst others, in German. In neither language, however, can any suspicion attach to this *s* of its being either a genitival sign or the remnant of a possessive pronoun. We will illustrate the foregoing remarks by a few instances. The Sanskrit words *go*, cow, and *pada*, foot or footstep, may combine to a common compound—*go-pada*, "the foot or footstep of a cow;" but, if both words are linked together with *s*, the compound, then becoming *goshpada*, means a spot frequented by cows, or a spot as small as the footmark of a cow. The Sanskrit words *apara* and *para*, both meaning "other," would, as a common compound *aparapara*, mean "one and, or one after, another;" but *aparaspara* means one after another, *continuously, uninterruptedly*. *Apa*, away, and *kŕi*, scatter, combined—*apakŕi*—would merely express the notion of "scattering away;" but *apaskŕi* is used of animals which scratch the ground either from joy, hunger, or other emotions. *Parikŕi*—from *pari*, round, and *kŕi*, do—would mean "to work round;" but *parishkŕi* (phonetically changed from *pari-s-kŕi*) means "to finish, to make perfect." In these and similar instances, the function of the intermediate *s*, we should think, is clear enough; but it is not less clear in a considerable number of German compounds which, by means of this link, become *indissoluble*. We here especially refer to those compounds the former part of which is a feminine noun, and, in consequence, incapable of forming a genitive in *s*—to compounds beginning with *Acht*, *Hilfe*, *Liebe*, as Acht*s*erklärung, Hilf*s*truppen, Liebe*s*gabe, &c., or with nouns ending in *ung*, *ion*, *tät*, *heit*—as Nahrung*s*sorge, Composition*s*consonant, Majestät*s*verbrechen, Gewohnheit*s*recht, &c., or with compounds ending in *t*, as Andacht*s*übung, Vorsicht*s*massregel, &c.

Now a similar function, we hold, is fulfilled by the English apostrophized *s*—which more correctly would remain without its apostrophe; for, if we admit that, in all these cases in which the governed noun precedes the governing noun, and both are conjoined by *s*, English meant to produce a compound of an emphatic character, all those difficulties, it seems, which beset the genitival and the pronominal theory disappear.

The difficulties created by these theories are, indeed, not restricted to those so ably pointed out by Mr. Manning. We may especially mention one which seems to have escaped both the Johnsonians, as Mr. Manning epitomizes them, and himself. It consists in the fact that there are many combinations of nouns in which the former, with *s*, does neither express the notion of a genitive nor that of ownership, unless, indeed, the latter term be strained beyond the limits of probability. One class of these cases is exemplified by Mr. Manning in the sentence quoted above. That, in "Cæsar's passing the Rubicon," *Cæsar's* does not represent the idea of a genitive, but that of an instrumental case, he has shown; but, when, on that occasion, he observes that "'*s* may be said to introduce an act performed by, and, as such, *possessed* by Cæsar," we doubt whether such an application of the notion of possession would occur to others, or would have occurred to him had he not been bent on squaring it with the pronominal theory. Nor do we think that either a genitival notion nor the idea of ownership could be attributed to the former part of phrases like these:—a *day's work*, which is work *for* a day, or done *in* a day; a *herdsman—i.e.*, the man *for* a herd; a *headsman—i.e.*, a man *for* beheading; a *helmsman*, a man *at* the helm; a *tradesman*, a man *in* a trade; a *bondsman*, a man *in* or *under* bond. And with these instances we may compare Hilf*s*truppen—*i.e.*, troops *for* assistance; Vorsicht*s*massregel-*i.e.*, a measure (prompted) by precaution; Gewohnheit*s*recht—*i.e.*, a right (established) *by* usage; Nahrung*s*sorge—*i.e.*, care *on account of* livelihood, &c.

That, in nominal compounds, the notion of a genitive and of possession—*which is the emphasized notion of a genitive*—will largely be represented by the former part no one will dispute; but that it need not be the only one is incontestable; and that other notions, too, may be emphasized by an intermediate *s* is shown by the foregoing instances which, in languages possessed of organic cases, would severally have to be analysed by an instrumental, dative, and locative case.

The character of composition which we assign to nouns combined by means of '*s* or *s* we must also maintain in instances like "the husband and wife's children," "the oxen and horses' labour," though Serjeant Manning is disinclined to look upon "husband and wife," "oxen and horse," and the like as compound bases, and believes that they differ in no respect from "*vir et uxor*." We believe, however, that the laws of composition in modern English differ entirely from those which prevail in Latin or Greek, or any other inflectional language. *Vir* and *uxor* being, though no longer visibly, but in reality, inflected nominatives with the loss of an original ending *s*, can for this very reason not form a compound *base*; "*et*," moreover, sufficiently indicates that they are co-ordinate independent *words*. "Husband" and "wife," on the contrary, may represent cases as well as crude forms; and, since the composition-laws of modern English admit not only of words joined by means of conjunctions, but of whole sentences being treated as *crude forms*, there is in reality no limit imposed upon the possibility of composition, in English, by the mere quantity of words, though in other languages such a mode of composition as that we refer to would be unbearable. While writing, a newspaper which we happen to open reminds us, by one of its compounds, of a whole class instances of which may be daily met with in advertisements; but, though this class of compounds is certainly more frightful than that which has provoked the wit of Mr. Manning, we must, nevertheless, acknowledge its legitimacy, and put it by the side of (*husband-and-wife*)*s-children*. The sentence before us—referring to Sir John Lawrence's Christianity—is this: "It is almost Christianity of the 'Put your trust in God and keep your powder dry' character;" and, from "Put" to "character," we do not hesitate to say that all has become one single compound unity, though it is certainly as unpleasant to handle as a knotted skein, or as unæsthetical to look upon as matted hair.

There is one class of cases to which we have not yet alluded, and which apparently supports the pronominal, or Mr. Manning's theory. We mean those cases in which the noun bearing the apostrophized *s* is not followed by a noun governing it. "A servant of my brother's," "a friend of yours," "the house is ours," "the gloves are Harriet's"—are instances we borrow from Mr. Manning to illustrate that class. That, in these instances, possession only is implied by the '*s* will be readily admitted; and, as we agree with him that the feminine "Harriet's" cannot represent an A.S. genitive, we likewise admit that the analogous formations, "brother's," &c., are not such genitives. But, as all these and similar phrases are elliptical, and as the character of their '*s* is the same as where '*s* occurs in unelliptical speech, we hold that there is no difference between both, and that its existence in these elliptical phrases is due to the noun not expressed but clearly understood. An analogous phenomenon, in Sanskrit, is the third person singular of the passive aorist, where the real ending *sta* has disappeared, but the connect-

ing vowel *i*, originally intended to connect the final of the verbal base with the initial consonant of the affix, has survived; *e.g.*, *akâr-i*, instead of *akâr-i-sta*.

Though, therefore, while agreeing with Mr. Manning in so far as the inadmissibility of the genitive case theory is concerned, we differ from his own theory, we willingly admit that, during a long period of English literature, many writers not merely took the same view as he has propounded in his essay, but practically worked it out by boldly substituting, as we should say, for *s* or *is*, the pronoun *his*. The evidence he has adduced in this respect of—what, from our point of view, we must call—a mistaken popular etymology is a most valuable contribution to the history of English grammar; as, indeed, all the matter he has brought to bear on the subject is so interesting and valuable that his essay may rightly claim a prominent place in modern English philology.

If, from among the various conflicting opinions now laid before the public, a clearer light could be thrown on the character and origin of the apostrophized *s* than has hitherto been done, the merit would be chiefly due to Mr. Manning's having boldly challenged existing prejudices, and induced others to imitate the example he has set.

TH. G.

SENSATION RECOLLECTIONS.

Princes, Public Men, and Pretty Women: Episodes in Real Life. By Flora Dawson. Two Volumes. (Bentley.)

IT will save the author some trouble and deprive her perhaps of some pleasure—writing these volumes. When you have a great deal to tell, it is sometimes a bore to be importuned to tell it; but consider the social success that it brings. Fancy a lady who has spent the greater part of her life at foreign courts, who has been on playful terms with princes, on candid terms with ambassadors, and who has known generals commanding-in-chief so well as to change, if necessary, the plan of a campaign. Fancy, too, her experiences, direct or indirect, as the case may be, mostly referring to people past away, whom we of this generation may never hope to meet in the flesh. What wonderful capacity for conversation must such exclusive knowledge beget! We can conceive dinner-tables silenced into respect by the simple words "I remember," uttered in the beginning-of-a-story style, and tea-tables—if there are such things now—reduced to a condition of awe by the same potential preface. Now the spell is broken—the charm has fled—the wand has been cast into the sea. All Mrs. Dawson's exclusive knowledge—we venture on the matronly designation, as it is impossible that a person with so much to say can remain single—all Mrs. Dawson's exclusive knowledge of how kings conduct themselves off the stage when their crowns are put away and their state robes left out to be brushed, and what the people by whom they are surrounded say and do, may now be known to anybody who pays a single subscription to Mudie's or the Library Company, and can be got by heart, doubtless, for about a guinea! After this, Mrs. Dawson's occupation as a conversationalist—we take her for granted in that capacity—may fairly be considered gone. Unless she has another two volumes in her head, she will be no more worth taking down to dinner than any other intelligent person of her admirable sex. However, that is her affair, not ours. She has written a book, which is a recommendation to a large portion of society (a small portion consider any connexion with printers' ink immoral); but we cannot help thinking the policy similar to that of the fabled young farmer who killed the goose for the golden eggs. A celebrated wit and scholar, whose fame was made in a past day, was asked by the present writer why he did not collect some of the brilliant contributions which he had made to periodical litterature. "*Pas si bête*," was his candid reply; "I prefer having a misty reputation to letting the fellows get a grip at me all at once." Whatever may be the value of this advantage, our author has given it to the critics; and we can only trust that the ordeal may result to her satisfaction.

For ourselves, we have read the book with an interest in which, perhaps, curiosity was largely mingled. You expect something of a work which deals in such headings as these:—"The Pages and the Soaped Stairs"—"The Pink Robe and the Last Parting"—"The Sisters and the Four Portraits"—"Home, the Bean-field, and the Esquimaux"—"The Russian Officer, the Betrothal, and the Duel"—"The Marked Man"—and so forth. Nor have we been exactly disappointed. The heading of the night, perhaps, has not always borne the morning's reflection; but there are some good stories and pleasant historical illustrations mingled with matter which we are afraid must be called frivolous. The tone is of the court, courtly; and there is an importance frequently attached to the feelings of royalty which savours of officialism. Who, for instance, but a maid-of-honour or her intimate friend would express herself so feebly as to say that, under certain stated conditions of provocation, "the king's face expressed a momentary amusement"? One would think that so subdued a tone could never be learned without a salary. However, some of the stories are, as we have said, pleasant enough. That of the "Soaped Stairs" relates to the court of Murat at Naples. The king was in the habit of receiving into his private apartments, by a back staircase, a closely-veiled and otherwise mysterious lady; and the pages, taking *omne ignotum pro magnifico*, conceived that she must be of surpassing beauty. Their curiosity getting the better of their gallantry, they adopted the simple means alluded to, to induce her to fall down stairs—just for the pleasure of picking her up again. It happened, however, that the king himself was the first to take the perilous way, and punctually fell a victim to the practical joke. His wrath at his discomfiture contains nearly all the point of the affair—except, by the way, that there was no occasion for scandal about the visits of the lady, which turned out to be of a purely business character. The "Pink Robe" story also relates to Murat. His queen, it seems, wore a pink dress the last time she saw him—an interesting fact not included in history. "The Four Portraits" is made of sterner stuff. A German gentleman marries his deceased wife's sister, who bears him a child on the same day of the year as his former partner, and dies on the anniversary of her death, in fulfilment of a presentiment long entertained. There is no habit that grows upon one more than that of marrying; and men who have had two wives generally have three or four. The German gentleman does at any rate, and places their portraits all in a row. "The Young Moravian" is a more consistent tale; and "The Marked Man" is a sensation anecdote with a moral. The beautiful wife of a barrister shoots a libertine man of fashion, who attempts to enter her room through her window. The pistol is loaded only with small shot, and does little more damage than disfiguring his face. She does not, however, blacken his character, even to her husband, and is content, when she meets him in society, to hear that he has met with an accident through firearms.

The sketch of Washington Irving is in a different style—and a better style too. It is a just and feeling tribute to that great American writer who loved England so well, and did so much to promote a cordial alliance between the two countries. "The *Undaunted* and its Freight" is a personal sketch of the career of Sir Thomas Ussher, who commanded the ship which took Napoleon to Elba, and includes a letter from that officer giving an interesting account of his illustrious passenger, who inspired him with both admiration and regard. In the course of the communication—which is to an intimate friend—he says of Napoleon:—

> His reverses by no means depress him. He is always in good spirits; talks with good humour of his last campaign; that it was not his wish to ruin France by a civil war, although it was but a faction that declared against him; he preferred the steps he has taken to maintaining a contest for his rights, when his yielding would afford comparative tranquillity. He says England has now no power that can oppose her *system*, and she may impose on France any treaty she pleases. "Les Bourbons, pauvres diables —" Here he seemed to check himself, and added, "Ils sont des grands seigneurs, qui sont contents d'avoir leurs terres, leurs châteaux." But, if the people of France become discontented with that, and find that they have not that encouragement for their manufactures that they ought to have, "ils seront chassés en *six mois*." Marseilles, Nantz, Bordeaux, and upon the coast—they do not care, so that they have the same commerce. But, in the interior, it is otherwise. "Je sais bien comme l'esprit était pour moi, et . . . Lyon et ses environs qui ont des manufactures, et que j'ai encouragés." He says that Spain was the natural enemy of Great Britain and friend to France. It was their interest to ally in support of their commerce and foreign possessions, equally offensive to Great Britain. That it was a shame to Spain to allow us to hold Gibraltar. It was only to bombard it *night and day* for a *year*, and it must be worn out. He did not enter Spain to put one of his family on the throne, but to revolutionize her, make her a kingdom *en règle;* to abolish the Inquisition, feudal system, and inordinate privileges of certain classes. *He compliments our nation:* says *we are a great and generous people.*

The same paper also contains a characteristic anecdote of William IV.

> At the first drawing-room held by Queen Adelaide and William the Fourth after their coronation, Miss E. Ussher was presented, as a matter of course, though already well known to the king while he was Duke of Clarence, owing to his friendship of many years' standing with her father. At the moment of presentation, however, some hesitation occurred, owing to a slight informality as Lord James O'Brien was handing her forward. At this the king, in his hearty stentorian voice, called out, "Is that Bessy Ussher? God bless her! let her come! Why, I've known her ever since she was a baby!" And a hearty and resounding kiss, planted on either cheek of the blushing girl, gave ample testimony to the sincerity of his declaration and the vigour of his regard. The confusion of the beautiful "Bessy" may be imagined. Every eye in that courtly circle was instantly turned full upon her; and great was the admiration and the astonishment of the high dignitaries collected around the throne on this grand and stately occasion.

There are some more sensation stories in the book, particularly one of a *vivandière*, who poisons her canteen in order to be revenged on the Emperor of Russia and his officers for an injury done to her husband. She is a young person of the best and purest character, whose clear blue eyes proclaim her innocence; but she has made several victims before her little device is discovered. On the whole, the book may be considered amusing from more than one point of view; and, although the incidents which it records be of no profound historical value, it is something to know that they are true. The author writes either from her personal experience or the accounts of others upon whom she can rely; and, having lived in many places and known many people, she has naturally a great deal to tell. This she does in a style which may be best described as *gushing;* and the flow is decidedly vigorous for such ornamental water, carrying her confidences pleasantly down the stream without much chance of a tempest.

S. L. B.

OUR COLONIAL EPISCOPACY.

Charge delivered to the Diocese of Natal at his Primary Metropolitical Visitation by Robert, Lord Bishop of Cape Town. (Maritzburg: Davis and Son.)

Remarks on the Recent Proceedings of Robert, Lord Bishop of Cape Town and Metropolitan, by the Right Rev. John William Colenso, D.D., Bishop of Natal. (Longman & Co.)

WHAT are the powers and duties of a metropolitan? An Englishman who should answer this question from his experience of the powers exercised by the

Archbishops of Canterbury or York must be somewhat astonished at the following enumeration of them by the pen of Bishop Gray:—

The functions of the metropolitan, as defined by the Canons of the Church, were to regulate the elections of provincial bishops and ordain them, *their appointment being null without his consent* (Bingham, II., xvi., § 12; Van Espen, I., xix., 3–6) [the italics here, and in the following quotations from Bishop Gray, are ours]; upon this point all the Canons are express—to decide controversies between them—to compel them to residence—to hear appeals—to call and preside at provincial synods—to take care of all vacant sees within their provinces—to administer the affairs of the Church during a vacancy (Bingham, II., xvi., 20)—to secure the *revenues* of the bishopric, and procure the speedy *election* of a new bishop—and, lastly, with the aid of his comprovincials, and, probably, under peculiar circumstances, without that aid (Van Espen, I., xix., 3, § 3), to hear charges against any bishop of his province, to correct, suspend, and, if need be, to deprive him. . . . . These duties, *powers*, and responsibilities are largely discussed and *laid down* by Bingham, Van Espen ("Dictionnaire de Droit Canonique—Juris Canonici Compendium"), and, indeed, all writers on the subject. . . . . To such an office, at all times full of responsibility, at this time burdened with great anxieties and difficulties, I have been called.

Our Englishman, judging from his home experience as to the appointment of bishops, will probably be not less surprised to learn from Bishop Gray how a metropolitan in the Colonies is appointed:—

"The propriety of appointing metropolitans," he says, "was fully discussed at a meeting of the English bishops, and such of the Colonial bishops as were within reach, summoned by the late Archbishop of Canterbury in 1853. At that meeting, at which I was present, it was *resolved that metropolitans should be at once appointed* over the *churches of* Canada, New Zealand, and South Africa (Australia and the East Indies being already under metropolitans); and the concurrence and joint action of the Crown in this matter was sought and obtained. The *Crown* gave *what force of law was within its power* to the decision of the Church, and *proclaimed* by letters-patent the see of Cape Town to be the metropolitical see of this province, and declared the bishops of Graham's Town and Natal (the other sees were not then founded) to be under the jurisdiction of the same."

That so great a person as Bishop Gray considers himself to be, in virtue of the resolutions of that private meeting of bishops whom he calls "the Church," and of those ancient ecclesiastical laws which, according to Lords Hale and Denman, form no part of the law of England ("Remarks," p. 20, 21), should condescend to take the limitations of his power from the provisions of the letters-patent appointing him, or the law of the Church in which he is a metropolitan from the decisions of the Privy Council, could not reasonably be expected. Accordingly he tells us:—

"That ecclesiastical causes should be tried and decided by ecclesiastical judges has been the law of the Church from the beginning. It is embodied in *the Canons* [*i.e.*, the Decretals recognised in the Church of Rome]. Freedom in this matter was secured to the church *from which we have sprung* by the provisions of Magna Charta—Libera sit ecclesia habeatque sua jura libertatesque illæsos;" and "with the Judicial Committee of the Privy Council the non-established churches of the Colonies have absolutely no concern."

In place of the laws of the Church of England, as declared by the determinations of her highest spiritual court, Bishop Gray claims to take as his rule

What the Catholic Church, while yet one, during the *first thousand* years of her history, under the Spirit's guidance, in her great councils, declared to be received as the true faith. . . . More than this we are not bound to acknowledge. Less we may not.

And, for the right assumed by him of judging and deposing one of his own suffragans, he appeals, not to the powers expressed in his letters-patent—which, though stating these powers in considerable detail, are quite silent as to any such right—but to the "Canons of Antioch confirmed by the great council of Chalcedon" ("Charge" p. 39).

In justification of these assumptions of authority, Bishop Gray adduces the principle that "the Church of South Africa," being only a voluntary religious association, can, like other similar religious associations—the Roman Catholics or Wesleyans, for instance—make its own laws, and call upon the civil courts to recognise the laws so made in all questions affecting temporal rights which may arise out of them ("Charge," p. 9). But here we apprehend that the Bishop has fallen into a confusion, which Bishop Colenso has well exposed in the following passage of his "Remarks" (p. 23):—

If the Bishop of Cape Town will surrender his letters-patent, and, with any of the clergy or laity who are willing to secede with him from the "Church of England," will form another church, to be called, *e.g.*, "The Church of South Africa, in union and full communion with the United Church of England and Ireland," and to be modelled (if they desire it) after that of some ancient church, with a complete mediæval system of ecclesiastical traditions, priestly authority, episcopal and metropolitan courts, exercising jurisdiction over clergy and laity, issuing sentences of suspension and deprivation for the former, and decrees of excommunication for both, there is nothing to prevent their so doing; no civil court would interfere with them, or "violate the liberties" of such an association. But he cannot, I apprehend, retain his status as a bishop of the Church of England, and thus renounce the system of that church, which, rightly or wrongly—most rightly, as I believe, though the Bishop of Cape Town seems to think otherwise—declares, by the thirty-seventh Article and thirty-sixth Canon, "that the Queen's Majesty, under God, is the only supreme governor of this realm and of all other her Highness's dominions and countries, as well in all spiritual or ecclesiastical causes as temporal."

The body of which Bishop Gray claims to be a metropolitan is not a voluntary association in the sense of being set up by the members resident in the country where he lives, without reference to any other community. What he calls "the Church of South Africa" is a body of persons who voluntarily join in certain religious acts, and recognise certain religious officials, because they profess to be members of a larger society—namely, the "United Church of England and Ireland"—and desire to carry into their life in South Africa her ritual and her laws. By such persons, or by persons desirous of aiding in such an object, the funds out of which Bishops Gray and Colenso are paid were subscribed. From persons professing to aid in such an object the application to the Crown to appoint a metropolitan in South Africa proceeded. The letters-patent accepted by Bishop Gray profess to give him jurisdiction over the bishops of his suffragan sees and their successors, and "over all archdeacons, dignitaries, and all other chaplains, ministers, priests, and deacons in *holy orders of the United Church of England and Ireland*" within those dioceses. This close connexion between the members of the Church of England at home and the members of it in the Colonies, and between its members in all the different Colonies with each other, is at once fatal to Bishop Gray's argument, and lends to his proceedings an importance quite independent of that belonging to the particular theological questions at issue between the Bishop of Natal and himself.

The inevitable result of the principles laid down by him, were they generally acted upon, would be the establishment of as many different systems of ecclesiastical law as there are different metropolitan jurisdictions connected with the Church of England in our different colonies—a result of which the obvious absurdity is alone sufficient to condemn the principles which lead to it. But the evil will not be confined to the Colonies. If the bishops and metropolitans in these provinces are bishops and metropolitans of the United Church of England and Ireland, as they are declared to be by the letters-patent appointing them, it follows that what may be lawfully done by such bishops and metropolitans in the Colonies in virtue of their offices may be lawfully done by our bishops and metropolitans at home in virtue of the like offices. If a bishop can be lawfully deposed in South Africa from his spiritual office by the sentence of his metropolitan and co-suffragans, so can a bishop be deposed in England or Ireland. In like manner, as the Bishop of Natal justly observes ("Remarks," p. 25), might any less dignified clergyman be deprived of his spiritual functions, by a sentence pronounced by his spiritual superiors, with as complete a disregard to the decisions of the supreme ecclesiastical court as is shown by Bishop Gray and his coadjutors in the instance of Bishop Colenso. And, from the temper displayed by a large body of our clergy in the present day, we think, with Dr. Colenso, that the assertion of such a spiritual jurisdiction at home will not long be delayed if it is found by experiment in the Colonies that it can be asserted with safety.

To this point we desire especially to call attention. Our limits do not permit us to dwell upon it as much as its importance deserves. But the mischiefs of a claim on the part of the clergy to administer a law of their own making without regard to the law of the land are so patent, that we hope the great majority of the members of the Church of England will need little argument to induce them not to tolerate any approach towards such a claim.

It may, however, perhaps be urged that, if Bishop Gray's assumed jurisdiction be not conceded, the laws of the Church of England, as they stand, furnish no means by which a Colonial bishop unfaithful to his office could be removed from it. Bishop Gray distinctly affirms this to be the case. If, he says, "the metropolitan, with the aid of the other bishops of this province," cannot remove such an officer, "no power on earth can. The Archbishop of Canterbury cannot. The *Crown cannot*. Were a bishop to become an atheist, or were he to believe in Mahomet, or to teach all Roman doctrine," there would be "no redress, no power of removal." We believe, however, that this notion is an entire mistake, and that the means of redress lie, ready for use, in that supremacy of the Crown over all ecclesiastical causes affirmed, as we have seen, most distinctly by the law of the Church of England.

"I am advised," says the Bishop of Natal, "that the Crown *can* remove a bishop, and that no other power in the Church of England can. . . . . Here is the true remedy for the supposed grievance. The Queen, by and with the advice of her Privy Council, can cancel my patent, or, if necessary, can cancel that of the Bishop of Cape Town."

We fully concur in this view. The episcopal sees of the United Church of England and Ireland in our Colonies are created by the *will* of the sovereign. By the *will* of the sovereign the appointments to them are made—appointments not revocable, it is true, at the *arbitrary* will of the sovereign, but held by the appointees only under the implied condition of obedience to the laws of the United Church, and revocable on a breach of those laws shown to the satisfaction of the proper tribunal, which we conceive to be the tribunal exercising, under the law for the time being, the supreme jurisdiction in matters ecclesiastical.

To an action based on the recognition of this authority Bishop Colenso solemnly challenges his ecclesiastical antagonists. Let them, he says, "present, as I myself have done, a petition to be heard before the Judicial Committee of the Privy Council, or any other court which her Majesty may see good to appoint, while accusing me of serious derelictions of duty in the high office which I hold by her Majesty's authority. . . . I will put no obstacles in the way of such an inquiry; I will raise no technical objections, nor interpose unnecessary delays. If they refuse to do this, then let them hold their peace as to the point of my having broken faith with the Church of England and violated her laws.

Or, *if they reject her Majesty's supremacy*, and desire to shake off the control of those wholesome laws which protect the clergy of the Church of England from the grinding oppression of mere ecclesiastical domination, *then let this purpose be distinctly avowed*, and so we shall understand more clearly the end which is aimed at and the nature of the conflict in which we are engaged" ("Remarks," p. 23).

We commend these words to the serious attention of our readers. They point out what we believe to be the gist of all that has been done in this matter at Cape Town, while they place Bishop Colenso on a firm standing-ground. He has been charged with desiring to avail himself of a legal accident in order to maintain a position which, but for that accident, he could not maintain in the Church of England. The perusal of these "Remarks" will, we think, satisfy any impartial person that this is not the case, and that, in refusing to recognise the jurisdiction claimed over him by the Bishop of Cape Town, the Bishop of Natal is fighting for all the clergy of the Church of England in the Colonies the battle of those liberties which the recognised laws of that Church assure to them, against an attempt to impose upon them the yoke of mediæval authority, without the sense of unity which made that yoke endurable.

E. V. N.

BALLAD POETRY.

The Ballad-Book: a Selection of the Choicest British Ballads. Edited by William Allingham. (Macmillan & Co.)

BALLADS and ballad-mongers have received scant justice in England: the latter have been classed by law with "rogues, vagabonds, and sturdy beggars;" while, of the former, the greater portion has perished by neglect and the ravages of time, and much of what has escaped these dangers has reached us in mutilated, and sometimes hardly decipherable, fragments. Great and irreparable as has been our loss from these causes, what still remains constitutes in itself a literature, and one which Spain, with her splendid ballads of the Cid, and Northern Germany and Scandinavia, rich in Sagas and Lieds, can scarcely rival. There are few of us who have not, like Sidney, felt our minds stirred, as "with a trumpet," when we have read, in the volumes of Percy, the breathing records he has gathered of the chivalry of our Marches, the loves and feuds and raids of the Douglas or the Armstrong, the gallant feats of the Knights of the Round Table, or the blithe doings of Robin Hood and his merry men beneath the oaks of Sherwood.

With treasures like these in our possession, it is difficult to account for the fact that, though we have many selections of ballads, amounting, in England and Scotland together, to little short of a hundred volumes, no collected edition pretending to anything like completeness has ever been published, and many of our ballads remain still in manuscript. The selections, for the most part, range themselves under three heads—first, works which, like the "Border Minstrelsy" of Scott, present a tolerably complete collection of the ballads of a certain district or epoch; next, those which, like Ritson's "Robin Hood," embrace all known ballads bearing upon a certain historical or romantic character or event; and, lastly, books like the volume of Mr. Allingham's or the collections of Percy, Evans, and a score of others, which give a choice of such as are deemed most popular or of highest literary merit. In respect to possessing no complete edition we are singularly behind other nations; the ballads of Spain, Portugal, and Italy had all been collected during the past century, and, more recently, those of Germany and Northern Europe have been published with great care and completeness. To atone for our neglect, an edition has been issued during the last few years in America. It is in eight volumes octavo,—is edited by Professor Francis James Child; and the collection of English ballads it contains is the most comprehensive yet issued. That our manuscript stores are not yet exhausted the recent sale of the collection of Mr. Daniel will witness; and not long since a collection of almost equal rarity was edited by the eminent antiquary Mr. Thomas Wright for the Roxburghe Club.

A fruitful source of difficulty to the editor, and annoyance to the reader, of our ballad-literature is the difficulty of obtaining any authoritative version of the text. The critics of the last century had little reverence for text and little regard for philological niceties, and ruthlessly inserted their own supposed amendments in the works they edited. No cautionary brackets marked where a word not in the original had been added or substituted, or where an entire stanza had been interpolated: not only so, but ingenious imitations of the ballads were added, with no sign to distinguish them from the originals; in course of time, the whole were accepted as equally genuine; and, as some of the modern ballads were the productions of men of undoubted genius, no ordinary acumen has been and is still required to detect them. It has been obscurely hinted—but we hope, for the honour of literature, that the report is not true—that Scott was the victim of a mystification of this kind; that, when preparing for the press his "Border Minstrelsy," he wrote to an English antiquarian of the highest note in the northern counties, but whom he will not more distinctly designate, requesting him to forward him any ballads he could pick up. The Englishman, willing to test the Wizard's critical abilities, sent him several modern imitations, the joint productions of himself and of a friend, and finding, when too late, that Scott, relying upon his integrity, had accepted them as genuine and inserted them in his work, never had the moral courage to acquaint him with the unjustifiable trick he had played.

The ruggedness of our old ballads is easily accounted for, and is far from detracting from their beauty. Irregularity of structure, rhythm, or rhyme, is explained by the fact that most, if not all, of them have been dependent for their preservation upon the memory of an oral transmitter or the taste of a half-lettered scribe; and it is wonderful that so much of exquisite poetry should have survived so rough an ordeal. Our earliest ballads, of which one or two remain, were composed or sung by the *trouvère* or the minstrel wandering about from castle to castle; but, with advancing years, the profession of ballader grew less and less noble, until the term came at length to be used as one of reproach. In the border districts, where the feuds were hottest and most incessant, and where the Saxon language lingered longest, the minstrel or harper found in later days his warmest welcome; and the lays he chanted were those which were most palatable to his hearers, consisting of records of their own exploits or of those of their ancestors. So late as the time of Queen Elizabeth a writer in a letter preserved by Sir Henry Ellis says: "Upon the Sundays and holidays the multitude of all sorts of men, women, and children of every parish do use to meet in sundry places, either on some hill or on the side of some mountain, where their harpers and crowthers sing them songs of the doings of their ancestors;" and from these harpers and crowthers have been handed down most of the ballads we now possess. Some few of them have been printed in the shape of books. The "Lytell Geste of Robyn Hode," for instance, was printed in the latter part of the fifteenth century by Wynkyn de Worde; but most of them had never any better chance of preservation than that afforded by the broadside or the chap-book.

Mr. Allingham has executed his task of selection with judgment and care; he has bestowed much pains upon the text; and the result is a success proportionate to his efforts, and he appeals with merited confidence to the verdict that will be passed upon his book by lovers of poetry. We have little fault ourselves to find with the volume, except its incompleteness; we should have preferred to think it would have been followed by at least five more volumes, edited with equal care, and containing the many omissions we note from the present volume. The introduction is pleasantly written, the notes are few and to the purpose. In the former, Mr. Allingham is wrong in the date which he assigns to the "Lytell Geste." He claims it for the early part of the sixteenth century; but it certainly belongs to the fifteenth. There is, of course, extreme difficulty in fixing, even approximately, the date of most of our ballads; but, in this instance, such difficulty does not exist. Mr. Allingham has given a liberal allowance of the Robin Hood ballads. Among miscellaneous contents are the fine ballads of "True Thomas," "Edom of Gordon," "Young Waters," "Waly waly," "The Hunting of the Cheviot," "Sir Patrick Spens," "The Douglas Tragedy," "Child Maurice," "Barbara Allen," "Burd Ellen," and "Glasgerion." The curious ballads with a double burden sung every alternate line are represented, among others, by "The Cruel Brother," "Five Flowers in the Valley," and the strange, weird tale of "Binnorie." We miss, however, from the book, among hundreds of others, the glorious old ballad of the "Nut-Brown Maid;" and we do not see a single ballad concerning Arthur and the Knights of the Round Table; nor are there any specimens of the Anglo-Saxon or the earliest English forms which the ballad assumed. Of the two similar stories of the "Twa Corbies" and the "Three Ravens" Mr. Allingham has chosen the first and the least poetical. It is taken from Scott's "Border Minstrelsy," in which it is stated to have been obtained from a lady who wrote it down from tradition. The "Three Ravens" is found in Ravenscroft's "Melismata," published in 1611; but the ballad is, as Ritson states, of a much older date. Both versions are exceedingly beautiful; but the "Three Ravens" has an unsurpassable pathos. The best stanza in the "Twa Corbies" is

> His hound is to the hunting gane,
> His hawk to fetch the wild-fowl hame,
> His lady's ta'en anither mate,
> Sae we may mak' our dinner, sweet.

This text is near a hundred years later than that of the "Three Ravens," which we quote entire, leaving out of all but the first verse the burden which, it is understood, is repeated with each.

> There were three ravens sat on a tree,
> *Downe a down, hay downe, hay downe;*
> There were three ravens sat on a tree,
> *With a downe.*
>
> There were three ravens sat on a tree,
> They were as black as they might be,
> *With a downe derrie, derrie, derrie, downe, downe.*
>
> The one of them said to his mate,
> Where shall we our breakfast take?
>
> Downe in yonder greene field
> There lies a knight slain under his shield.
>
> His houndes they lie downe at his feete,
> So well they their master keepe.
>
> His hawkes they fly so eagerly,
> There's no fowle dare him come nie.
>
> Down there comes a fallow doe,
> As great with young as she might go.
>
> She lift up his bloudy hed,
> And kist his wounds that were so red.
>
> She got him up upon her backe
> And carried him to earthern lake.
>
> She buried him before the prime;
> She was dead herself ere even-song time.
>
> God send every gentleman
> Such hawkes, such houndes, and such a leman.

True poetry is this, and we marvel at the absence of the poem from Mr. Allingham's collection. His book is admirably got up; and, with its pleasant and legible type, good paper, convenient size, and inviting table of contents, woos us to put it in our pocket and make it our companion to moor, or lake, or coast-land, or wherever our holiday footsteps may wander.

GYMNASTICS AND CALISTHENICS.

Handbook of Calisthenics and Gymnastics: a Complete Drill-book for Schools, Families, and Gymnasiums; with Music to accompany the Exercises. Illustrated from Original Designs. By J. Madison Watson.—Also, *Watson's Manual of Calisthenics: a Systematic Drill-book for Schools, Families, and Gymnasiums; with Music to accompany the Exercises.* Illustrated from Original Designs. (New York and Philadelphia: Schermerhorn, Bancroft, & Co.; London: Trübner & Co.)

The New Gymnastics for Families and Schools, together with the Dumb-bell Instructor and Pangymnastikon. By Dio Lewis, M.D., Boston. With 300 Illustrations. With an Introduction by M. C. Tyler, M.C.P., Principal of the London School of Physical Education. (Tweedie.)

IF proof were wanting of the advantages of a systematic physical training which yet stops far short of making Leotards or Blondins, we might point to our Volunteers as an illustration. The volunteer ranks are filled by men engaged in every variety of pursuit, who, unlike the regular soldier, can devote only a small portion of their time to drill. Yet the spectators of the last grand review in Hyde Park had but to use their eyes to be satisfied of the prodigious improvement in carriage and military deportment which had been effected since the first formation of the several corps. The members of the corps themselves are not less forward to testify as to the favourable effect of their martial exercises upon health, and on this account alone, setting patriotism aside, do not grudge the time spent upon them. Military training, however, exercising, as it does, almost exclusively the lower limbs, requires to be supplemented by exercises which bring into play the muscles of the neck, shoulders, and chest. This is well and easily done by gymnastic exercises, which only some of our volunteers, we fear, have the opportunity of practising in the gymnasium; and even the soldiers of the Guards and Line might, with advantage, have their opportunities in this respect increased. The multiplication of regular gymnasiums, with elaborate and costly apparatus, is not easily effected, and is happily not at all necessary. The system of Calisthenics and Gymnastics set forth in the volumes before us can be practised anywhere—in the parlour, in the workshop, in the school-room, in the public park, or on the village-green.

Mr. Watson's volumes are got up in a style of binding, typography, and illustration which does credit to the American press. The "Manual of Calisthenics" is extracted from the large "Handbook," with such alterations as were necessary to its completeness as a distinct treatise, and is intended for those who do not desire to employ apparatus of any kind. It requires no separate notice. The "Handbook" embraces the entire curriculum of physical culture, and is a complete gymnastic drill-book, with words of command and classes of movements systematically arranged, together with all necessary exercises for the lungs, the voice, the organs of speech, the joints, the sinews, and the muscles. The first part of the volume, which treats of "Vocal Gymnastics," contains a carefully-arranged series of exercises in Respiration, Phonetics, and Elocution, and is enriched with a selection of the best English poetry. Mr. Watson has treated the whole subject of vocal gymnastics with the most elaborate care, and has given, in this part of the volume, one of the ablest treatises on elocution and the general management of the respiratory and vocal organs which we have ever seen. Nothing could be better than the accompanying series of poetical reading-exercises; and the inflections, accentuations, &c., are indicated in a skilful and judicious manner. The second part, which forms also the subject of the lesser "Manual," treats of "Calisthenics," or exercises performed without the aid of apparatus, designed "to further the proportionate development of the body, render the joints more flexible in all directions, give the pleasing and graceful appearance of firmness, steadiness, and dexterity in the positions and in the use of the limbs, and secure physical beauty, muscular strength, and robust health." The prospect of such results is, we must confess, rather tempting, and that persevering effort will secure them in a greater or less degree we do not doubt. The author does not aim to make his pupils acrobats or tumblers, but seeks simply to give flexibility and grace to every part of the body. Nor are the exercises pushed to the extremity which secures excessive muscular development at the expense of a lowered vitality—an error which many regard as accounting for the defeat of Heenan the pugilist in his last encounter. The great object of securing vital stamina is continually kept in view. Minute instructions are laid down as to the mode of teaching Calisthenics in schools and classes; and well-executed illustrations are given of all the attitudes and positions deemed necessary to secure the results contemplated, as well as appropriate music arranged specially for the piano. The musical accompaniment Mr. Watson justly regards as absolutely necessary "to awaken lively and abiding interest." A brass band he deems best, and, of single instruments, the piano—next, the violin, guitar, or flute; and we presume that, where musical talent is not to be obtained, and people are not very fastidious, the marrow-bones and cleavers might serve the purpose pretty well. In elementary schools, and wherever an instrument is not at hand, the exercises may be performed to the cadence of songs or recitations.

Music is not less important in the next stage—"Gymnastics," or exercises that are performed with the aid of apparatus. The music does not require to differ from that employed in Calisthenics. Of apparatus, Mr. Watson recommends the "wand"—any straight, smooth stick of moderate size will do—which furnishes "an extended course of beautiful and effective exercises." Dumb-bells he regards as, on the whole, incomparably superior to any other article of gymnastic apparatus, and "available at all seasons and in all places." He grows more enthusiastic, however, about Indian clubs, which "act like an incantation. You cannot touch them, you cannot lift them, for the simplest exercise without causing strength to flow into every member of your body as naturally and irresistibly as water into the conduit when you turn it on to irrigate and enrich the soil. New sets of muscles seem to shoot out from your shoulder-blades, enabling you to do almost without effort what you could not dream of doing before." Really, we fear the above quotation will cause a run on the dépôts for Indian clubs akin to the run on Mappin during the garotting era, or a run on the banks during a panic. Of other apparatus, the gymnastic rings afford opportunities for many graceful positions and effective movements only, however in combination. Those made of cherry or mahogany are to be preferred. The mode of employing these several articles of gymnastic apparatus is elaborately described by Mr. Watson, whose volume will be found of service by all who seek health or value it.

"The New Gymnastics," by Dr. Dio Lewis of Boston, comes to us in an English edition, with an introduction by Mr. Tyler of the London School of Physical Education, who has crossed the Atlantic to introduce the new system into our seminaries of education, and who is himself thus introduced to us by Dr. Dio Lewis:—"If Old England will accept from New England, in partial payment of our thousandfold obligations of filial love and gratitude, a new system of physical culture, I am confident that our messenger will prove most acceptable." We are sure that both the messenger and the book will be received in the spirit in which they have been sent. The books of Dr. Lewis and Mr. Watson belong to that class of sturdy, thorough text-books we receive from America, referred to in a recent leading article in our journal as tending to give us a very favourable impression respecting educated Americans. Between their respective systems there does not seem to exist any material difference. Both discard heavy weights and violent exercises, and aim at developing, in due proportion, the entire muscular system rather than one set of muscles at the expense of the rest. The contents of Dr. Lewis's book are in three divisions, the first describing his own system, the second and third being translations of the celebrated German treatises of Professor Kloss and Dr. Schreber on the dumb-bell and pangymnastikon respectively. In Homeric fashion, we shall take the last first. Dr. Schreber thus describes his pangymnastikon:—

Two large hand-rings are suspended from the ceiling by ropes which, running through padded hooks, are carried to the walls. Two other ropes extend from the walls directly to the hand-rings. A strap with a stirrup is placed in either hand-ring. By a simple arrangement on the wall the hand-rings are drawn as high as the performer can reach, or let down within a foot of the floor, or at any altitude they can be drawn apart to any distance. The distance between the stirrup and rings can be likewise varied. The usefulness of the pangymnastikon depends upon the facility with which these changes can be made.

The pangymnastikon, it will be seen, requires an apartment specially suited for it. A great many illustrations are given of the various exercises which may be performed with the aid of this apparatus, which Dr. Schreber regards as the most complete *multum in parvo* in the gymnastic field, and as possessing the advantages of all other gymnastic apparatus. The treatise of Professor Kloss contains descriptions and illustrations of a large number of the most valuable exercises with the dumb-bells. It is a useful guide to the performance of "parlour gymnastics," all the descriptions being simple and easily understood. The most interesting portion of the volume, however, is the first, containing a full account of the gymnastic system of Dr. Lewis. It dispenses with all heavy and cumbrous apparatus, and

Adopts simply light wooden rings, wooden dumb-bells, rods, and clubs. None of these implements are attached to post, or wall, or ceiling; but each is merely held in the hand when used, and laid aside when the exercises connected with it are performed. Furthermore, the exercises which this simple apparatus involves are elaborated, with a view to their physiological value, in distinct sets; each exercise has its own invariable place in the series to which it belongs; all are adapted to quick and stirring music; they combine almost infinite variety with consummate simplicity and precision; and, finally, they permit of being performed in the drawing-room, school-room, or hall, wherever there is space sufficient for outspread arms, in a manner the most graceful, pleasing, and appropriate.

Such are the "New Gymnastics," according to Mr. Tyler. He claims for the system the advantages of simplicity, safety, and comfort; power to give flexibility, ease, grace, poise, and perfect accuracy and rapidity of muscular action; thorough attractiveness and perfect adaptation to either sex and to almost any age. As in the other parts of the book, the movements recommended are fully described and illustrated.

It is not detracting from the merits of the able teachers of Calisthenics and Gymnastics in England to say that these importations from across the Atlantic will give a stimulus to the study and practice of these health-giving exercises among us. None will rejoice more than they in the attention these volumes may awaken or the improvements they may suggest. To their contents we would earnestly invite the attention of all classes of our countrymen. The first unveiling of the mysteries of Calisthenics and Gymnastics to ourselves was during a prolonged sojourn at one of our leading hydropathic establishments, to which the ill-health produced by a tropical sun compelled us to resort. We practised these exercises to recover health; we would advise others to practise them to keep it. It is when health is lost or impaired that one can sympathize with the assertion of Professor Kloss, that "He who has it has all things; he who lacks it has nothing."

NOTICES.

The Two Anastasias. A Novel. Three Volumes. (Bentley.)—"THE Two Anastasias" is a domestic novel, somewhat like those which Miss Yonge has made so popular. Here there is nothing over-strained, nothing sensational, nothing which might not have happened in the common world around us. There is no plot worth speaking of, scarcely one exciting incident, not a spark of humour, nor any very graphic scene-painting. But, if the novel lack several of those elements which make other tales attractive, it has, nevertheless, a quiet charm of its own. From the first chapter to the last the interest is well sustained; most of the characters are carefully and cleverly drawn, and possess a lifelike individuality, while the narrative of the Lake-family's joys and sorrows is told with a pathos which is often extremely touching. The author, say rather authoress—we doubt whether any man could compose a tale like this—writes with a vigorous and, we suspect, a practised pen. She possesses a mastery over her materials which some of our most popular novelists might envy. But it is time we should give our readers some notion of what those materials consist. The tale might appropriately have been termed "Crossed in Love," since almost all the principal personages suffer in some way from the consequences of misplaced affection; and, when this is not the case, the love is thwarted by a cruel fate. Our readers will understand, therefore, at the outset that the story is painful rather than pleasant. Nevertheless, like life itself, it is a mingled yarn, and the colour of the threads is not always sombre. Anastasia the elder, an impulsive, fearless, truth-loving, handsome woman of six-and-twenty, is in love, when the tale opens, with a wild scape-grace, Frank Tyrrell by name; but the union is, of course, strongly opposed by her father, Dr. Lake, of Lake House, to whom she has given a promise never during his lifetime to marry Frank, unless with his consent. Her brother, Robert, who is succeeding to the doctor's practice, and is the father of Anastasia the second, also opposes the union with passionate earnestness. Anastasia is proof against this opposition. She believes in Frank, and loves him, and is sure he loves her. Already "twelve years of happiness" had been lost, and every year Frank is becoming less worthy of Anastasia. She might have saved him from himself, he said; if she waits until she is free, he may not be fit to marry her. "Frank, I will *trust* you," she replied, "to keep fit to marry me." And she did trust him fully, and believed that, when once united, Frank, who had some germs of a noble nature, would break off his evil courses for her sake. What came to pass when Dr. Lake died, and how it happened that Frank did not then win the prize which he had so long been anxious to obtain, our readers may discover for themselves. Anastasia, despite her indignation, thinks her heart is broken, and for a time, indeed, she grows moody, hopeless, almost desperate. The manner in which she recovers from this condition, rises from her dead self to higher things, and becomes a loved, honoured, tender-hearted old maid, is described with great felicity. Indeed, when we part with Anastasia in her old age, we have a kindlier feeling for her than we had in the hey-day of her youth. Anastasia Lake the younger is a fine character, full of impulse and passion, but impulse checked by good sense, and passion governed by sound principle. Very early does she fall in love, as pretty girls in novels are bound to do; but she is charmingly constant to her Scotch lover, and lays "every tribute paid to her beauty at red-haired Kenneth's feet." Her constancy is rewarded at last; but she has to pass through a weary waiting-time; and, when she does marry, she has lost "youth's roundness and softness of beauty," and is, at least in her own estimation, a pale-cheeked and sharp-featured old woman. Tasie has spirit and pluck, and sustained by religious principle, and by her love for Kenneth Forbes, manages to endure the suspense of years while he is fighting in India, or undergoing the miseries of an Indian dungeon. Her younger sister Hannah's character is cast in a different mould. She is gentle, timorous, and far too easily swayed by those around her. She is forced to yield herself implicitly to a stronger will, and comforts herself in the belief that she is sacrificing pleasure to duty. This is the most melancholy portion of the novel, and it is unrelieved, or nearly so, by any bright touches. Had she followed the leadings of her heart, and remained true to Miles Leigh, she might have been happy, although the youth was endowed with a most unenviable temper: but, in marrying Stephen Berridane when she did not love him, she committed an error for which a bitter atonement was exacted. We have said that the plot of "The Two Anastasias" is unimportant; nevertheless, we shall not mar the pleasure of our readers by following the thread of it. Many of the subordinate characters are drawn with vigour; and, on the whole, the tale displays great ability. It is free from some of the worst faults of our modern novelists; it possesses not a few of their best characteristics. In writing thus we award the tale no small meed of praise.

Troubled Waters. By Mrs. C. L. Balfour, author of "The Burnish Family," "Drift," "Glimpses of Real Life," "Retribution," &c. (Glasgow: Scottish Temperance League; London: Houlston and Wright. Pp. 364.)—WE have repeatedly had occasion to speak disparagingly of teetotal literature. The champions of "the cause," with here and there a notable exception, place their doctrines before us in so blatant and threatening a manner that the natural antagonism within us rises against it; or, regardless of time and place, they importune us with an air so sanctified that we are left with nothing to bestow but our unmitigated contempt. Teetotal literature, in short, is underbred; and, while it continues so, it will never influence, or even reach the educated classes. It was with no small pleasure, then, that we stumbled upon a teetotal story that was not only readable, but entertaining, and, in many passages, highly artistic. No greater service could be rendered to the "Scottish Temperance League" than that of writing a temperance tale which will be read for its own sake. It is like gaining an audience of the quality. "Troubled Waters" have all the ordinary elements in them; but Mrs. C. L. Balfour mixes them so cunningly that we fail to recognise in any very marked, and certainly in no disagreeable, manner the special purpose of her book. It is this natural teaching which is always the most potent; and, so long as "the League" can secure the services of such writers as Mrs. Balfour, it may always count on success. Here is a touch or two from her ready hand:—"Come, Biddy, this once—as little as you like, but some—I must have some. Go without delay, pray go." "Oh, yer honour, is it me you'll ask to do that same? Anythin' else in life, sir, I'll fetch, but not that—no, not that." "Woman, I want nothing else; don't be a fool, but go." "I'll hack off my hands first. Oh, dear, your honour, don't be after tastin' that divil's decoction any more at all. Ah, thin, if Father Mathew was to the fore, as the once was—the saints in glory be praised for him, for shure it's he was the saint on earth!—and when I tuck the pledge on him, in that blessed summer of Forty-three, when he come down to the like of me in St. George's Fields, and give a dacent home, and the heart comfort that had long been gone to my people, the O'Hallorans in Call-Mall Buildings, and to a powerful many besides, from the quality downwards." "Biddy, I've heard all this before. Am I to understand that I, being, as you see, ill, have asked you to make a purchase for me, and you refuse?" "Oh, thin, I know it's but a servant I am; and many's the time that, with a heart sore, I've fetched and carried for Satan, saving your honour's prisince! but there's them that can take the foul fiend by the horns, and there's them that he'll trample and gore; and maybe the craythurs that's tore into skibbereens is better than the bowld blackguards that's kin to himself." "Grant me patience with this woman! Biddy, you'll go?" "No, yer honour; that I should ever have to say no to the likes of you, and the shakes and the sickness on ye; but its murther ye're asking me to do."

The Foe on the Hearth. Three Volumes. (Newby.)—THIS is a novelist's nightmare. Crowded with incidents of the most astounding description, it is so utterly disjointed that it would be quite impossible to give any account of the plot. It seems a pity that so many good mysteries and amazing marvels should be wasted on a story that not one person in a thousand will be able to read through. There is matter enough to furnish a dozen sensation romances; but the author's utter want of artistic skill causes the book to resemble a collection of totally heterogeneous incidents extracted from the police-reports. And we cannot praise the writer as a delineator of character. But, if, as seems probable, he is a young hand, his singular fertility of invention may, at some future time, be applied to a better purpose.

Annual Reports of the United States Christian Commission—1863, 1864. (Philadelphia.)—IN the month of November 1861 a commission of clergymen and laymen was appointed in New York "to promote the spiritual and temporal welfare of the officers and men of the United States army and navy, in co-operation with chaplains and others." For this important work many gentlemen offered their services gratuitously. The government granted stores, passes, and help of various kind; the most valuable aid was bestowed by all classes of the community, and even the soldiers themselves added their "most welcome, but never solicited," contributions. The records of the work done are contained in the two reports before us. They deserve a careful perusal, especially at the present time, when the civil war in America has aroused so much ill-blood in this country. There is, naturally, a strong resemblance between these statements and those of our own City and Home Missionary Associations; but the fact that the labours of these Christian men in America are carried on in the neighbourhood of the battle-field, and by the bed-sides of wounded soldiers, gives a tragic charm to their otherwise simple narrative. War is a frightful evil; but it has its bright side notwithstanding; and the accounts which have reached us from time to time of the virtues it has called forth in the United States lead us to hope that, in the end, it will tend to elevate and purify the minds of the American people. We need scarcely add that we find here a strong sense of the righteousness of the war now waging with the "rebels." Any lukewarmness on this point would, doubtless, affect the heartiness of the labour thus gratuitously bestowed. We should like to receive a similar narrative from the Confederate States.

Heads of an Analysis of English and French History: with a Brief Notice of Contemporary Events and a few Appendices of Important Subjects. By Dawson W. Turner, D.C.L., late Demy and Exhibitioner of Magdalen College, Oxford; Head Master of the Royal Institution School, Liverpool. Fifth Edition, with Additions and Corrections up to the Present Time. (Longman & Co. Pp. 160.)—THE framework which Dr. Turner places before the student is of a kind to enable him to fill up for himself a stately and reliable edifice of English and French history. In the body of the text are inserted passages of brilliant exposition and description from the best authors, and at the foot of every page the student is referred, for the enlarging of his information, to authorities who have made the particular point in question their special study. The emphasis of type and arrangement, too, is used to great advantage; and the reader can, almost at a glance, not only fix upon any epoch he chooses, but satisfy himself in a few minutes as to the readiest and most authoritative way of exhausting historically the particular period he desires to master. The little manual carries on its title-page its own recommendation in the potent words *Fifth Edition.*

English Commercial Correspondence: a Collection of Modern Mercantile Letters. By T. S. Williams, formerly Lecturer at the Johanneum College, Hamburg, and P. L. Simmonds, author of "A Dictionary of Trade Products," Editor of "The Technologist." (Hamburg: G. E. Nolte; London: Williams and Norgate. Pp. 304.)—THIS is another volume of a practical character, as our readers will readily understand when we inform them that the greater part of the letters have been translated into French and German. In looking over the volume we can scarcely convince ourselves that we are not turning over the pages of a merchant's letter-book. Produce markets, shipping business, home trade and manufactures, colonial and foreign merchandise—all find a place in the "Commercial Correspondence" before us; and the youth who would enter any of our great City houses will find that familiarity with this volume will form no bad introduction to his commercial career.

Graduated Exercises in Arithmetic and Mensuration; containing Two Thousand Original Examples. By the Rev. James Harris, M.A., St. Catherine's College, Cambridge; Head Master of the Cathedral Grammar-school, Chester. (Chester: W. F. and M. Healey; London: Longman & Co. Pp. 180.)—MR. HARRIS has obviated a great want of which teachers of arithmetic have often to complain—we mean the want of properly graduated exercises in sufficient numbers to be of service to the student. The questions are of a thoroughly practical kind, and the arrangement of them will be highly appreciated by all teachers. The answers are appended to the volume.

French Studies. By Alfred Havet. Fifth Edition. (W. Allan & Co.; Simpkin & Co.)—IT is unnecessary to praise a volume the value of which has been so fully appreciated by the public. The book is one which may be safely recommended

both to pupil and master. The Dictionary which follows the conversations and exercises renders the "French Studies" complete in themselves. A considerable knowledge of the French language may, indeed, be acquired without referring to any other volume.

Songs in Sorrow, and Songs of Joy. By C. H. I. A New and Enlarged Edition. (Edinburgh: J. Taylor.)—It is, perhaps, invidious to criticize verses which, like those before us, are the expression of a heart-felt devotion. Although rhythm and rhyme, and meaning also, are occasionally lacking, the feeling is good throughout; and, if the thoughts be feeble, the piety is fervent. There are, no doubt, many readers who will appreciate and enjoy these mediocre productions.

PUBLICATIONS OF THE WEEK.

Bakewell (Thomas J.) Exercises in the Simple Rules in Arithmetic. Fourth Edition. 8vo., sd. *Longman.* 3d.; Answers to, 6d.

Balfour (Mrs. C. L.) Troubled Waters. Roy. 18mo., pp. 364. Glasgow: *Scottish Temperance League, Houlston.* Sd., 1s.; cl. lp., 1s. 6d.

Bertolacci (Wm. Robert). Christian Spiritualism. Cr. 8vo. *E. Faithfull.* 5s.

Burritt (Elihu). Walk from London to John O'Groats, with Notes by the Way. With Portrait. Second Edition. Sm. post. 8vo., pp. ix—345. *Low.* 6s.

Charlesworth (Maria Louisa). Ministry of Life. Twenty-seventh Thousand. Fcap. 8vo. *Seeleys.* 5s.

Burton (Richard F.) Mission to Gelele, King of Dahomey. With Notices of the so-called "Amazons," the Grand Customs, the Yearly Customs, the Human Sacrifices, the Present State of the Slave Trade, and the Negro's Place in Nature. With Engravings. Two Volumes. Post 8vo., pp. xxiii—798. *Tinsley.* 25s.

Colenso (Right Rev. John William, D.D.) Remarks upon the Recent Proceedings and Charge of Robert, Lord Bishop of Cape Town and Metropolitan at his Primary Metropolitical Visitation of the Diocese of Natal. 8vo., sd., pp. 96. *Longman.* 1s.

Dumas (Alexandre). Spectre-Mother; or, Love after Death. Fcap. 8vo., bds., pp. 292. *C. H. Clarke.* 2s.

Fireside Readings for Every Day in the Week. 8vo., sd. Edinburgh: *Johnstone and Hunter.* 6d.

Howitt (Mary). Cost of Caergwyn. Three Volumes. Post 8vo., pp. 883. *Hurst and Blackett.* 31s. 6d.

Irons (William J., D.D.) "Apologia pro Vitâ" Ecclesiæ Anglicanæ. In Reply to John Henry Newman, D.D. Sixth Edition. 8vo., sd., pp. 16. *Wright.* 1s.

Jonas Eilers. A True Narrative. 18mo. *Hamilton.* 1s.

Lang (John). Ex-Wife. A Novel. New Edition. Fcap. 8vo., pp. viii—390. *Routledge.* 2s.

Leatham (Edward A., M.A., M.P.) Charmione: a Tale of the Great Athenian Revolution. Third Edition. With Historical Introduction. Sm. post 8vo., bds., pp. xxiv—280. Leeds: *Hamer. Simpkin.* 2s.

Le Page (M.) Petit Musée de Littérature Française. Gems of French Literature, in Prose and Verse. With Chronological and Critical Notices of the Eminent Writers in France, from the Fourteenth Century to the Nineteenth. Vol. 1, Prose, 12mo., pp. xii—454; Vol. 2, Poetry, pp. vii—304. *Virtue.* 9s.

Lowell (James Russell). Biglow Papers. Second Series. Authorized Edition. Fcap. 8vo., sd., pp. 133. *Trübner.* 1s.

Macleod (George H. B., M.D., F.R.C.S.E.) Outlines of Surgical Diagnosis. 8vo., pp. viii—543. *Churchill.* 12s. 6d.

Murray's Knapsack Guide for Travellers in Italy. Illustrated with Maps and Plans of Towns, Galleries, &c. Fcap. 8vo., pp. xxvii—591. *Murray.* 6s.

Neven (G. A.) Letters and Conversations for Translating from English into French, &c. Cr. 8vo. *Williams and Norgate.* 3s. 6d.; Key, 3s. 6d.

Paterson. The Practical Statutes of the Session 1864 (27 & 28 Victoria); with Introductions, Notes, Tables of Statutes Repealed and Subjects altered, Lists of Local, and Personal, and Private Acts, and a copious Index. Edited by W. Paterson, Esq. 12mo., pp. xii—408. *Crockford.* 10s. 6d.

Sala (George Augustus). Breakfast in Bed; or, Philosophy between the Sheets. A Series of Indigestible Discourses. Cheap Edition. Fcap. 8vo., bds., pp. 334. *Maxwell & Co.* 2s.

Statutes. A Collection of the Public General Statutes passed in the 27th and 28th Years of the Reign of H.M. Queen Victoria, 1864. Roy. 8vo., bds., pp. xii—882. *Eyre and Spottiswoode.* 14s.

Thomas (Annie). Denis Donne. A Novel. Three Volumes. Third Edition, Revised. Post 8vo., pp. 931. *Tinsley.* 31s. 6d.

Wilson's Tales of the Borders and of Scotland. New Edition. Vol. 18. Fcap. 8vo., sd., pp. 284. Manchester: *Ainsworth. Ward and Lock.* 1s.

Wood (Mrs. Henry). Lord Oakburn's Daughters. Three Volumes. Post 8vo., pp. 1060. *Bradbury and Evans.* 31s. 6d.

Wood (Mrs. Henry). Trevlyn Hold; or, Squire Trevlyn's Heir. By the Author of "East Lynne," &c., &c. New Edition. Post 8vo., pp. iv—518. *Tinsley.* 6s.

JUST READY.

Beale (Lionel S.) How to Work with the Microscope. Third Edition. Cr. 8vo. *Harrison.* 12s. 6d.

Brewer (Rev. Dr.) Young Tutor. 18mo. *Cassell.* 3s. 6d.

Collins (Wilkie). Woman in White. Cheap Edition. 12mo. *Low.* 2s. 6d.

Cooley's Cyclopædia of Practical Receipts. Fourth Edition. 8vo. *Churchill.* 28s.

Haskoll (W. D.) Examples of Bridges and Viaduct Construction. Obg. fol. *Lockwood.* 42s.

Leechman (Rev. John). Logic. Fourth Edition. 12mo. *W. Allan & Co.* 3s. 6d.

Parker (Theodore). Collected Works. Vol. 9. Post 8vo. *Trübner.* 6s.

Quiver (The). Vol. 6. Imp. 8vo. *Cassell.* 4s. 6d.

Richardson (Wm.) Packing-Case Tables. Obg. *Lockwood.* 3s. 6d.

Russell (Wm.) Eccentric Personages. Two Volumes. Post 8vo. *J. Maxwell.* 21s.

Shakespeare's Plays. Edited by Thomas Keightley. Vol. 4. Fcap. 8vo. *Bell and Daldy.* 5s.

Smith (Barnard). School Class-Book of Arithmetic. Part 2. 18mo. *Macmillan.* 10d.

Trollope (Anthony). Can You Forgive Her? Vol. 1. 8vo. *Chapman and Hall.* 11s.

Trollope (Anthony). Rachel Ray. Seventh Edition. Cr. 8vo. *Chapman and Hall.* 5s.

Wraxall (Sir C. F. L.) Historic Bye-Ways. Two Volumes. Post 8vo. *J. Maxwell.* 21s.

MISCELLANEA.

Mr. J. Gorham, of the College, Hurstpierpoint, thus describes the water-spout which was visible off Hove, Brighton, on Saturday last:—"My attention was called to what appeared to be a fire on the sea, some three miles off, to the S.S.W. The little cloud of smoke moved along the water rapidly towards the shore; and, while we were wondering what it could be, a curved double dark line was observed tending towards it, from a heavy cloud in the south. We then understood that it was a water-spout. The curved double line could not be traced from the cloud to the water, though light-coloured portions of the tube occasionally appeared in the interval. The cloud passed a little to the east of us, while the mist disappeared behind some houses to the westward, apparently reaching the shore within a mile of us; thus the point where the curved lines joined the cloud passed nearly overhead. There was a smart shower for a few minutes, after which the sky cleared and the day was fine till near sunset." On the evening of the same day a lunar rainbow was visible from Cowes, in the Isle of Wight, which is thus noticed in the letter of a visitor:—"This evening I witnessed one of those rare spectacles, a perfect lunar rainbow. The arch was most vivid in its colours, presenting a magnificent unbroken bow. It stretched over the waters of the Solent, one extremity resting on Hampshire and the other on the Isle of Wight. It was only visible for a few minutes, a smart shower of rain obscuring the fleeting vision. The time was 9.25."—On the same night, as we infer from an undated letter which appeared in the *Times*, the shock of an earthquake was felt at Headley, near Hazlemere. The writer says:—"The inhabitants of this village were all surprised last night by a violent shock which occurred at ten minutes to ten. The whole house in which our party were staying was shaken, and there was a sound as if a heavy body had fallen from a height on to the floor of the room above our heads, like somebody falling out of bed. On my arrival at the inn where I slept, some quarter of a mile distant, I learnt that the same phenomenon had been experienced there, and with such violence as to cause the glass, &c., on the sideboard to ring. This morning we have heard several other accounts of a similar nature from persons living in different parts of the village. A similar shock took place on the morning of Wednesday, the 7th inst. Several of the villagers were shaken in their beds by that of last night." The thunderstorm of Saturday seems to have extended across the whole length of the southern coast from Cornwall to Kent, and the lightning struck the tower of St. Mary's, Taunton.

The church of St. Giles, Cripplegate, was re-opened on Sunday last for divine service. The amount of the "Milton" subscription is now exhausted, yet much still remains to be done in the way of restoration. The vicar, churchwardens, and Milton committee therefore make an appeal to the public for funds to enable them to complete the perfect restoration of this "stately, eminent, and graceful structure," in which is the tomb of England's great epic poet. The further sum required is about £2000.

The new chapel of King's College, just completed from designs by Mr. Gilbert Scott, has been consecrated by the Bishop of London, and will be opened for public worship on the first Sunday in October. There are seats to accommodate 600 persons. The building is at the back of the great entrance-hall, Somerset House.

A curious piece of the old Roman road was laid bare at Malton on the 12th instant, about three feet below the present level. It consists of paving-stones run together with mortar. The street was strewn with calcined bones of horses, oxen, and sheep, which are supposed to be relics of the conflagration of 1135, when Archbishop Thurstan reduced the town to ashes, when in the hands of the Scots.

An equestrian statue of the late Prince Consort, in bronze, by Mr. Thornicroft, was unveiled on Saturday last at Halifax. Sir Charles Wood, one of the members for the borough, and Sir F. Crossley, one of the members for the Riding, were present with the mayor upon the platform in front of the statue during its inauguration.

We have much pleasure in recording that Mr. Coxwell's benefit on Wednesday at the Crystal Palace drew together 10,837 persons who paid at the entrances, and 2625 season ticket-holders, making a total of 13,462 visitors. Wherever he appeared he was loudly cheered, and everyone seemed desirous to make it evident to him in what a despicable light the public placed the savage horde of Foresters who destroyed his balloon at Leicester.

It would appear that tan, if not an effectual cure for the potato-disease, may be considered a preventive. A gardener residing at Troyes, having observed during the continuance of the cholera that the quarter of the town occupied by the tan-yards remained free from a single attack, says he was tempted to try what effect tan would have upon the potato-disease. He accordingly planted in the same field part of the seed-potatoes in a trench into which he had thrown a shovelful of tan, and the remainder in the usual way. On digging out the potatoes he found that those which were planted near the tan were perfectly sound, whilst the others were diseased. He adds that tan spread over the floor of the storehouse preserves the potatoes sound during the winter.

Captain C. F. Hall, of the whaling barque *George Henry*, has just started on a second expedition in search of any surviving companions of Sir John Franklin. In the meantime Messrs. S. Low and Co. will publish Captain Hall's "Life with the Esquimaux," a narrative of extraordinary individual enterprise and perseverance, almost unaided. It gives the results of a long intercourse with the Innuits, and a full description of their mode of life—social, political, and religious—and records the discovery of actual relics of the expedition of Martin Frobisher, of three centuries ago. In it Captain Hall makes some important deductions in favour of yet discovering some survivors of Sir John Franklin's expedition. The book is compiled from his logs and journals, from the 29th of May, 1860, to the 13th September, 1862.

The inhabitants of Cavaillon, a town in the Vaucluse, celebrated for its melons, says *Galignani*, having formed the project of founding a public library, wrote to Alexandre Dumas to ask him to aid them by a present of a few of his works. The novelist wrote back to say that he had given instructions for the 200 or 300 volumes of his works which have already appeared as a reprint to be sent to them; but that, if they liked his books, he also was fond of their melons, and that, in exchange, he desired to have constituted to him regularly, by municipal decree, a life-rent of one dozen melons a year, the expense of carriage to remain at his charge.

The Emperor of Russia has issued five decrees relative to the government of Poland, providing for the public instruction of the people by the creation of a university at Warsaw and the establishment of numerous schools for all classes. The national language is to be preserved, the penal code modified, and corporal punishment abolished.

It is a curious coincidence that, in the genealogies of the rival claimants for the sovereignty of Schleswig-Holstein, both houses, Glücksburg and Augustenburg, are closely connected with the royal family of England, Duke Frederick of Schleswig-Holstein-Augustenburg being descended on the female side, from the niece of George III., the daughter of the maligned and ill-used Caroline Matilda, Queen of Denmark.

Professor Veitch of St. Andrews has been elected to the Chair of Logic in Glasgow University.

M. Barthe has been appointed to fill the Chair of the Professor of Political Economy at the Paris School of Law. This professorship has just been re-established by M. Duruy.

The long-expected commentary on the Bible, which has been entrusted to several eminent scholars and divines, the list of whose names was given in No. 46 of The Reader, in consequence of the delay occasioned by the death of Dr. M'Caul, will not be published till next year.

Mr. Murray has just issued a most valuable catalogue, of thirty-six pages, of school and class books published by him.

Messrs. Cassell, Petter, and Galpin have just issued the first number of a new series of the *Quiver*, beautifully printed and illustrated by some of the most eminent engravers on wood.

We have received from Messrs. Trübner & Co. a reprint of Miss Cobbe's "Religious Duty," the American edition of which has long been exhausted. It forms a companion to her "Essay on Intuitive Morals," being, like it, in the words of the author, "a contribution to a vast object—the development of Theism as a Religion for the Life no less than a Philosophy for the Intellect."

On the 1st of last month a new cheap daily morning and evening paper was started at Calcutta, under the name of the *Indian Daily News*, at the rate of 25 rupees per annum. The *Hindoo Patriot* speaks of it as a success. A new English paper is about to be started at Madras by some native gentlemen, to be called *Moharaj*.

We understand that the celebrated collection of autographs left by General Radowitz, which was advertised for sale by auction on the 20th inst., has been acquired by the Royal Library of Berlin.

The *Literarisches Centralblatt* (No. 38) notices a pamphlet by Dr. H. Böhmer, in reply to Liebig's attack upon Bacon, "Ueber Francis Bacon von Verulam und die Verbindung der Philosophie mit der Naturwissenschaft," and Oppenheim's trans-

lation of the second volume of May's "Constitutional History of England." The *Deutsches Museum* (No. 37) gives two interesting papers on "Petrarca und Laura: Vaucluse und Avignon," and "Klytämnestra und Maria Stuart"—the one by A. Zacke and the other by Alex. Büchner; the *Magazin für Literatur des Auslandes* (No. 37), "Maria Stuart's Bibliothek;" the *Blätter für Literarische Unterhaltung* (No. 36), "Alex. von Humboldt und Berghaus," and "Wesen und Sprache der Zigeuner;" the *Europa* (No. 38), "Erinnerungen an Georg III.," "Wie alt ist die Photographie?" and "Das jüngste Eisteddvod;" the *Berliner Revue* (No. 38), "Die Situation in England," and "London vor 100 Jahren;" the *Serapeum* (No. 13), "Eine Bücher-Rechnung des 16ten. Jahrhunderts," and a bibliographical essay on "What Dramatic Art owes to the Jesuists;" *Das Ausland* (No. 37), papers on "The Foreign Relations of Persia," "On the Language of the Gipsies," and "Hampton Court;" *Aus der Heimath* (Nos. 36 and 37), two anthropological essays—"Ueber die Natürliche Stellung des Negers," and "Ueber Thier und Mensch," by H. Jäde; the *Zeitschrift für Aegyptische Alterthumskunde*, a most important article—"Die drey altägyptischen Jahreszeiten," from a communication from the Viscount E. de Rougé; and the *Neue Jahrbücher für Philologie* (No. 7), "Beck's MSS. of the Satyricon of Petronius Arbiter."

Dr. Schenkel's "Charakterbild Jesu" has reached the third edition within a few weeks.

The second volume of Gustav Kühne's "Deutsche Charaktere" has appeared. It comprises biographies of Joseph II., Mozart, Klinger, and Hölderlin.

The letters of Flir, the Tyrolese priest, from Rome, which created so great a sensation, are to be followed by a second series.

W. Raabe (J. Corvinus) has written a new three-volume novel, entitled "Der Hunger Pastor." Of other novelties of German romance we mention "Das Wahrzeichen von Tübingen," by Max Eifert; "Philippine Welser," by Adalbert Graf Baudissin; and "Hoffnungen in Peru," by Bibra.

Dr. Ambros of Prague has completed his second volume of the "History of Music." He is now in Rome collecting materials for his next volume, which is to treat of church-music.

The new volume of Gruppe's "Leben und Wirken Deutscher Dichter" contains the poets of the seventeenth century—Hoffmanntwaldau, Lohenstein, and the other minor poets.

On the occasion of the recent singing-festival at Berne, a meeting of Swiss writers took place, at which several measures for the furtherance of a better system of association among themselves and the protection of literary property were adopted. Of recent Swiss productions of some importance are to be mentioned—"Kulturhistorische Bilder aus der Schweiz," by E. Osenbrüggen; "Schweizer Bilder," by Jakob Frey; "Aus Berg und Thal," by J. Hofstätter; "Romane aus Ost und West," by R. Weber; "Artistische Bilder," by J. Hoiler; and E. Peschier's "Dichterbuch der französischen Schweiz."

By a lucky accident G. Horn has found, in the hands of a Bayreuth citizen, an extensive correspondence between Voltaire and the Margravine of Bayreuth, sister of Frederick the Great, which is shortly to be published.

Mr. F. G. Bergman has an interesting paper in the *Bulletin de la Société Littéraire de Strasbourg*, entitled "L'Unité de l'Espèce humaine, et la Pluralité des Langues primitives." Under the title of "Etudes Anthropologiques," M. J. Ch. M. Boudin issues a curious pamphlet—"Considérations sur le Culte et les Pratiques religieuses de divers Peuples anciens et modernes: Culte du Phallus; Culte de Serpent."—Dr. Eugène Robert has a paper in the *Mondes*, also issued as a pamphlet—"Destinations principales des Monuments celtiques, avec quelques Aperçus sur les Ossements et les Poteries contenus dans les Hypogées."

M. Alphonse Chapelon has compiled a most useful handbook for students of literary history—"Cours abrégé de l'Histoire de la Littérature Française depuis ses Origines," a stout volume of 504 pages.

A most interesting work on early maritime discovery by the Spaniards, including that of America, is announced as preparing for publication:—"Marina Española de la Edad Media: Bosquejo Histórico de sus Principales Sucesos en Relacion con la Historia de las Coronas de Aragon y de Castilla, por F. Javier de Salas." The author in his prospectus states that he has access to "*la hermosa coleccion inédita de Sans de Barutell, compuesta de 52 tomos en fólio, y la no ménos interesante del Sr. Vargas Ponce*," sources which have been all but sealed books to other labourers in the same field.

CAPTAIN JOHN HANNING SPEKE, THE AFRICAN EXPLORER.

In another place we have reverted to the deep gloom which was cast over the meeting of the British Association at Bath on Friday last when, instead of welcoming, as they had anticipated, the discoverer of the source of the Nile, the members learnt from Sir Roderick Murchison that Captain Speke, while engaged in field-sports on the previous day, had accidentally shot himself. On seeing the Captain fall, his relative, Mr. Fuller, ran up to him, and found that the charge had passed through his chest, close to the heart. He was still sensible, and feebly said to his friend "Don't move me," but died in about ten minutes.

Captain Speke was the second son of Mr. William Speke of Jordans, Somerset, and was born in 1827; so that, at the time of this sad accident, which has deprived his country of one of her most enterprising sons, he was only thirty-seven years of age. He was but seventeen years old when he entered the army in 1844. From early boyhood he was an inveterate sportsman, and was educated at one of our provincial grammar-schools. He possessed that indomitable courage which is happily the distinguishing characteristic of boys brought up as he had been. "As a subaltern officer in the Indian army," says a writer in the *Times* of Monday last, "he had made the campaign of the Punjab, under Lord Gough, where, as he tells us in one of his works, he had added his mite to the four successive victories of Ramnuggur, Sadoolapore, Chillianwallah, and Guzerat, acting throughout this terrible time with Sir Colin Campbell's Division. His reward for his good service in these fields had been an indulgent consideration of his applications for leave of absence when the war was over. These opportunities he used to make hunting and exploring expeditions over the Himalayas, and in the untrodden parts of Tibet. A botanist, a geologist, and especially a lover of natural history, he toiled to collect specimens of every animal, every plant, and every mineral to be found in those wilds; 'shooting, collecting, and mapping the country' as he went, he taught himself all that knowledge which is required to enable the traveller to appreciate and utilize all he sees. He obtained his annual leave of absence easily, because he brought back such good proofs of the use he made of it. These were his preparations for his after-travels in Africa, where he first struck upon the great lake which is the fountain of the Nile, reaching it from the north, and then proved what was at first but a sagacious conjecture by tracking the river upwards to this same lake from the south."

Captain Speke's adventures and scientific explorations in the land of the Somali, in company with Captain Burton, were communicated by him to the public, in 1854 and 1855, through the pages of *Blackwood's Magazine*, and have been more recently in a volume entitled "What led to the Discovery of the Sources of the Nile." They are also narrated in Captain Burton's "First Footsteps in Eastern Africa." After his return to this country he went to the Crimea as a volunteer in the Turkish contingent. The campaign ended, he had a desire to explore the fauna of the Caucasus, but abandoned the idea on receiving an invitation to rejoin Captain Burton in another African expedition. The result of that expedition was made public in 1860 by Captain Burton in his "Lake-Regions of Central Africa."

Near the island of Mombas, on the eastern coast of Africa, on the mainland, the Church Missionary Society had founded a mission-house at Rabbai Mpia, in which two enterprising Germans, Dr. Krapf and the Rev. Mr. Rebmann, were located. To these gentlemen, in fact, in some measure, is due the great discovery with which the name of Captain Speke will ever be associated. They had, each in turn, made exploratory travels into the neighbouring lands; and, whenever they fell into the company of the native traders, who cross the interior of Africa in caravans, they were told of immense lakes of sweet water, extending for several degrees north and south of the Equator. This immense body of water they mapped down as stretching over twelve degrees, in a geographical survey of the lands they had explored, and forwarded the map to the Geographical Society. Here it was seen by Captains Burton and Speke; and this immense "water-slug," as the latter called it, led to the expedition described in Captain Burton's last-mentioned volumes.

The expedition proceeded westwards from Rabbai Mpia, and resulted in the discovery of the lake Tanganyika, where Captain Burton fell ill at Kazeh, and Captain Speke passed his time, in strong health, fishing and shooting on the lake. The friends here separated; and Captain Speke, following the route suggested by some native traders, discovered the lake Nyanza, the great reservoir which, in his recent expedition with Captain Grant, he has established as the water-shed of the Nile.

When, on the return of the travellers to England, in 1859, Captain Burton presented himself to receive the gold medal of the Royal Geographical Society from the hands of the President, Sir R. Murchison, he said—"You have alluded, sir, to the success of the last expedition. Justice compels me to state the circumstances under which it attained that success. To Captain Speke are due those geographical results which you have alluded to in such flattering terms. While I undertook the history and ethnography, the languages and the peculiarity of the people, to Captain Speke fell the arduous task of delineating an exact topography, and of laying down our positions by astronomical observations—a labour to which at times even the undaunted Livingstone found himself unequal."

Of Captain Speke's last expedition, in company with Captain Grant, in 1859 to 1863, his "Journal of the Discovery of the Sources of the Nile" gives a full and most interesting account. On his return to this country Captain Speke was the lion of the season. He and Captain Grant were received by the Royal Geographical Society at one of the most crowded meetings (out of their regular session) of that learned body with the heartiest welcome. "Even the sills of the windows facing the court-yard," according to the report in the daily papers, "had their clusters of visitors, straining eye and ear to see the men who had solved the great geographical problem of past ages." Sir Roderick Murchison, in presenting Captains Speke and Grant to the assembly, spoke of their enterprise and its important results in terms which drew hearty cheers from all who heard him.

For this discovery Captain Speke obtained the medal of the Royal Geographical Society. Her Majesty the Queen congratulated Sir Roderick on the success of the expedition, towards which Government had contributed the necessary funds, and the Prince of Wales listened to Captain Speke's interesting narrative of his travels at the Royal Institution. The King of Italy ordered gold medals to be forwarded to the explorers, on which the motto was "Honor a Nilo;" and the letter of the Italian Ambassador accompanying the gift was couched in such graceful terms that Sir Roderick Murchison designated it as "worthy of the country which reared a Columbus." Captain Speke's county, the same which gave birth to Sir Francis Drake, was not slow to recognise his merits. Sir William Miles, the senior member for Somerset, brought forward the merits of Captain Speke before the House of Commons, and drew from Lord Palmerston a hearty tribute of respect. The reward to which Captain Speke was fully entitled at the hands of Government cannot now reach him; but a greater honour than any government can confer will ever attach to his name—The Discoverer of the Source of the Nile.

CORRESPONDENCE.

The Editor does not hold himself responsible for opinions entertained by Correspondents. Anonymous communications cannot be inserted.]

TENNYSON'S "NORTHERN FARMER."

To the Editor of The Reader.

Wakefield, Sept. 17th, 1864.

Sir,—Accepting what "A Louth Man" says of the dialect of North-eastern Lincolnshire, I still believe in that of Tennyson's "Northern Farmer."

I think that both may be right; for, in most counties, a few miles make a great difference in the dialect of the natives. And the "Louth Man" is scarcely justified in assuming that the "Northern Farmer's" dialect is intended for North-east Lincolnshire; for Mr. Tennyson is *not* a native of Grimsby or the north-east, but of Somersby, near Horncastle; and the distance between Somersby and Grimsby will make all the difference. And we have no right to assume that the poet would wish to illustrate the north-eastern dialect rather than that of the district in which he was born, and to which he so often refers in his works.

In almost all counties the dialects vary considerably in the extreme parts, and partake more or less of the adjoining counties. Here, in Yorkshire, almost every town and district has its own dialect; and no doubt there is as much variation between North-east and Mid and South Lincoln as between Leeds and Sheffield.—I am, &c., S. W. Gissing.

SCIENCE.

THE BRITISH ASSOCIATION AT BATH.

Bath, Wednesday Night.

THE weather, which, at first, was none of the best, has, during the last few days, allowed the temporary residents in this beautiful nest-like city—where erst

"'Twas a glorious sight to see the fair sex
All wading with gentlemen up to their necks,"

and in the very bronze-ring-bedeckt bath under the Reception-room window—to appreciate somewhat better its delightful situation, to inspect its antiquarian riches, and to visit its beautiful gardens and neighbourhood. All this, be it remembered, was in addition to the Sectional work and other matters—that is to say, two excursions, two discourses in the theatre, two meetings of the General Committee, a microscopical *soirée*, and, finally, the farewell meeting, held at three this afternoon.

Bearing all this in mind, and remembering that the variety of Sectional papers has necessitated the sitting of several Sections to-day to finish them off, we must acknowledge that not much time has been lost. The work, in fact, has been got through admirably, and, thanks to the untiring exertions of Mr. Griffiths and Mr. Francis Galton, who really have been ubiquitous, and the local secretaries, with Mr. Moore at their head, there has been neither "friction nor stickfast" in carrying out any part of the programme.

Alas that we have to chronicle the death of Captain Speke, whose loss has cast a gloom over the latter proceedings of the Association, saddening all hearts, and adding another to the list of travellers, Bruce and Du Mont D'Urville among the number, who have passed unscathed through a long life of danger in foreign lands only to find death awaiting them at home.

None who were either in the Committee of Section E when the sad news arrived, or in the Section when Sir R. Murchison announced it, will ever forget the scene; and here we may, perhaps, be permitted to express our astonishment at the conduct of one or two journals. We do not allude to that breach of faith which permits of a publication *in extenso* on Friday of what is not to be officially presented to a body like the British Association till Monday, but to the untruthful and unfeeling statements relative to the reception of the news of Captain Speke's death, which Sir R. Murchison very willingly allowed Section E an opportunity of repudiating yesterday. The *facts* are these:—By a strange coincidence, the Committee of Section E were discussing the advisability of recommending to the Government that some positive recognition of the services of Speke and Grant should be made, when the news arrived. Sir R. Murchison, trembling with emotion, communicated the sad intelligence to the Section. Captain Burton, and not Captain Grant, not trusting himself to find words, handed the following pencil-note to the Secretary to read for him:—"I cannot touch on African matters without a few words of deeply-felt allusion to my old colleague Captain Speke. The differences of opinion that are known to have lain between us while he was alive make it more incumbent on me to publicly express my sincere feeling of admiration of his character and enterprise, and my deep sense of his loss now that he is so suddenly and shockingly removed from among his geographical associates."

We must now pass on to another topic. Professor Roscoe's lecture and Dr. Livingstone's discourse, both delivered in the theatre, passed off admirably. Warned by the crush at the former lecture, Mr. Clements Markham read a duplicate of Dr. Livingstone's address at the Mineral Water Hospital, to lessen the crowd in the theatre; and the arrangement answered capitally. Dr. Livingstone was able to show himself there at about ten to an assembly which had patiently waited since seven. The Bishop of Natal, who was on the stage with the General Committee, by his modesty, brought about one of the most remarkable ovations that we have ever witnessed; and, bearing in mind the distinguished assemblage present, it was altogether a most remarkable demonstration. Having taken, as is his wont, one of the most retired seats, he was requested to come forward, and, being reluctant to do so, was slightly cheered by one or two of his admirers. This brought out a hiss—a most unfortunate one for the cause which it supported; for, as a counter-demonstration, the whole house for five minutes was in a perfect frenzy of cheers. The Bishop, at last, was compelled to rise, and bow an acknowledgment, and, upon doing so, was warmly congratulated by the Dean of Hereford.

Professor Roscoe's discourse will be found in another column. The reception accorded to Dr. Livingstone was most enthusiastic. It falls to the lot of few individuals to receive such tokens of esteem and admiration; and it would be well if the Government, as suggested by Sir Roderick Murchison, should notice in some substantial manner one who has so thoroughly committed himself to the great work of African civilization. All must admire his honesty and single-mindedness of purpose, though we may not altogether think that his course of action is the best calculated to conciliate the Portuguese, who are not very likely to be *coerced* into a career of philanthropy.

The *Bath Chronicle*—which really has, in the most spirited manner, rivalled in fulness, if not in accuracy, the Newcastle report of the sayings and doings of the "wise-week"—reminds us that the evening meetings have been like

"O'Rourke's noble feast—which will ne'er be forgot
By those who were there and by those who were not."

Although this applies to last night's *soirée*, we are bound to say that the crush was not so great as at the first one; and, as a consequence, some of the objects exhibited were scarcely looked at. There was a large array of optical, mathematical, and philosophical instruments, the number of microscopic slides being legion.

The General Committee met on Monday; and, foremost in importance, though not in order, among the business done, Professor Phillips was appointed President for the ensuing year—a decision which reflects honour not only on the man who is the Association's best friend, but on the officers and leading men of the Association, who were overjoyed at being able thus to award the highest honour it is in their power to bestow.

Birmingham was chosen for the place of meeting next year—much to the astonishment of a large section of the General Committee. The deputation from Birmingham consisted of the Mayor, the Master of King Edward's School, and Mr. O'Callaghan, a member of the Council of Natural History and Archæological Society of Warwickshire, and others, who presented memorials from that society, the Warwickshire Field-Naturalists, and other similar institutions.

The deputation from Nottingham next stated their claims; and these were so strong and just, as the Association have never visited that town, that everybody thought that, as a matter of course, Nottingham would carry the day. An influential member of the Association, however, who has the reputation of intuitively recognising the winning side, rose and proposed that Birmingham should be the next place of meeting. An amendment was then moved, amongst much cheering, that the next meeting be held at Nottingham. The president, Sir Charles Lyell, then, amidst great excitement, called for a division; and then, and not till then, did the Nottingham deputation give way—a kind of tacit agreement being entered into that 1866 should see the Association in that town. For our part, we are delighted that Birmingham has been chosen; for the meeting is certain to eclipse all former ones, and this should be so in Phillips's year.

Lord Leigh, Lord Lichfield, Lord Wrottesley, the Bishop of Worcester, Mr. Adderley, Mr. Scholefield, M.P., and Mr. Chance were appointed Vice-Presidents.

The Secretary announced that the time of the meeting would be left to the Council of the Association to decide after a communication with the Local Committee.

At the meeting of the General Committee to-day Mr. Hopkins, the General Secretary, read an estimate of the expenses for the ensuing year, after which the following grants of money for scientific purposes, proposed to the General Committee at the present meeting, were voted:—

	£	s.
Kew Observatory	600	0
Mathematics and Physics.		
Mr. Glaisher—Preparation of Forms for Observation of Moon's Surface	35	0
Mr. Glaisher—Luminous Meteors and Aerolites	40	0
Professor Williamson—Electrical Standards	100	0
Col. Sykes—Balloon Committee	150	0
Mr. Symons—Rain-Gauges	30	0
Dr. Robinson—Transmission of Sound	30	0
Chemistry.		
Professor Matthieson—Chemical Constitution of Cast Iron	30	0
M. Gages—Mechanical Structure of Rocks	20	0
Mr. Catton—Analysis of Organic Acids	20	0
Professor Williamson—Analysis of Gases of Bath Waters	20	0
Professor Wanklyn—Hexylic Compounds	20	0
Geology.		
Professor Phillips—Fossil Crustacea	50	0
Sir R. Murchison—Bone-Caves of Gibraltar	150	0
Dr. Falconer—Fossil Remains in Malta	30	0
Sir C. Lyell—Excavations in Kent's Hole	100	0
Mr. J. Salter—Lingula Flags at St. David's	10	0
Zoology and Botany.		
Dr. J. E. Gray—Breeding of Oysters	25	0
Sir Wm. Jardine—Zoological Nomenclature (renewal)	10	0
Mr. Jeffreys—Dredging Coast of Aberdeenshire	25	0
Mr. Jeffreys—Dredging Coast of Channel Islands	50	0
Dr. E. P. Wright—Irish Flora	25	0
Professor Allman—Hydroida	13	0
Mr. P. P. Carpenter—Report on American Mollusca.	3	9
Mr. Jeffreys—Marine Fauna and Flora	25	0
Dr. B. W. Richardson—Physiological Action of some Amyl Compounds	20	0
Geography and Ethnology.		
Mr. Lubbock—Typical Crania (renewed)	50	0
Statistic and Economic Science.		
Lord Wrottesley—Metrical Committee	20	0
Mechanics.		
Mr. Scott Russell—Resistance of Bodies in Water (renewed)	100	0
Mr. Oldham—Tides of Humber	6	8
Mr. Hawkshaw—Tidal Observations on British Coasts	200	0
Mr. Webster—Patent Laws (renewed)	30	0
	£2037	17

The following suggestions of the Committee of Recommendations, not involving money-grants, were then agreed to:—

That the President's Address and the various Sectional Addresses be printed in the *Transactions*.

That the report of the Committee on Tidal Observations on the Humber, Trent, and Ouse, with tables and diagrams, and Mr. W. Fairbairn's paper "On some of the Mechanical Properties of the Atlantic Telegraph Cable" be printed *in extenso*.

That Mr. Fleeming Jenkin be requested to continue his report on Electrical Phenomena.

That the Committee on Fog-Signals be re-appointed, with power to add to their number.

That Mr. Hirst be requested to report on certain New Developments of Geometrical Measures.

That Professor Stokes be requested to continue his report on the Present State of Physical Optics.

That Professor Griffiths and Dr. Akin be requested to continue their report on the Transmutation of Spectral Rays.

That General Sabine be requested to afford Herr Neumayer advice as to the best form of publication of the Magnetical Observations of the Melbourne Observatory.

That Dr. Paul be requested to draw up a report upon the Application of Chemistry to Geology.

That Dr. Baker Edwards be requested to make experiments, and report upon the Alkaloidal Principles of Calabar Beans.

That Mr. J. G. Jeffreys, Dr. J. E. Gray, Mr. R. M'Andrew, Dr. Collingwood, Mr. Spence Bate, Rev. A. M. Norman, Dr. C. P. Wright, and Rev. Thomas Hincks be a Committee for the purpose of acting as a General Dredging Committee.

That the Rev. V. Harcourt, Right Hon. J. Napier, W. Tite, Esq., M.P., Professor Christian, James Heywood, Esq., F.R.S., J. R. Bateman, Esq., Esq., F.R.S., T. Webster, Esq., Sir Benjamin Brodie, Professor Williamson, and Professor W. A. Miller be reappointed a Committee for the purpose of reporting on Scientific Evidence in the Courts of Jurisdiction.

That the Committee on Gun-Cotton be requested to continue their reports.

That Mr. J. A. Spencer, not having been able to complete his report "On the different modes of estimating nominal horse-power of marine engines,

with a view of securing the adoption of one uniform system," he be requested to continue his labours.

That Major-General Sabine, Sir John Herschel, J. P. Gassiot, Esq., and Sir R. Murchison be a Committee for the purpose of communicating to the Russian Government the opinion of the British Association that the establishment of magnetical observations, on the Kew System, at the Observatory of Tiflis, by Professor Moritz of that place would largely conduce to the furtherance of magnetical science.

That the Parliamentary Committee be requested to press on the Government the expediency of instituting a series of experiments on fog-signals.

That Sir R. Murchison, Admiral R. Collinson, and Mr. A. G. Findlay be a Committee for the purpose of recommending that a request be forwarded from the British Association to her Majesty's Government that, as far as is compatible with the exigencies of her Majesty's navy and the discipline of the ships they should be be furnished with apparatus (as used in her Majesty's ship *Bulldog*), and instructed to ascertain the depth of the ocean, and obtain specimens of the bottom on all convenient occasions, the particulars to be forwarded to the Hydrographic Department, and the specimens to be sent to the Geological Museum.

That Sir R. Murchison, Lord Alfred Churchill, M.P., Mr. Galton, and Mr. Spottiswoode be a Committee for the purpose of requesting the Foreign-Office to grant to Captain Richard Burton six months' leave of absence to explore the sources of the Niger before proceeding to his new post.

After the meeting of the General Committee, the farewell meeting was held in the Assembly Rooms, the Archdeacon of Bath occupying the chair. After the grants and recommendations had been read, Mr. Hopkins, the General Secretary, reported the financial result of the meeting as follows:—

The number of tickets issued is:—Old life-members, 287; new life-members, 40, and the amount received, £400; old annual members, 181, the amount received from these, £181; new annual members, 103, amount received from them, £206; associates, 1119, the sum received from them, £1119; ladies, 1058, and from them the Association had derived £1058. The total number present at the meetings has been 2788; and the income of the Association derived from this source is £2964. The balance in hand is £3622. 17s. The expenses for the publication of the reports, the salaries, and the annual reports of different kinds, altogether are estimated by the Treasurer at £1400; and the available balance which can be appropriated by the Association to the advancement of science is £2222. 17s. The grants voted by the General Committee amount to £2037; and this would leave, supposing these sums to be actually required, a balance in hand of £185. If we refer, however, to the expenses of past years, we find that, of the sums voted by the General Committee, upon the average about £300 in each year is never demanded; so that, to this £185 we have in hand, we may add the £300, making the whole balance to be placed to the credit of the Association not less than £485. The Association has funds in Consols to the amount of £8500, making the whole sum which may be considered as the capital of the Association £8980, or very nearly £9000.

After speeches from Archdeacon Browne, Sir R. Murchison, the Mayor, Mr. Moore, and others, and votes of members to Sir Charles Lyell, the Chairman, and others, the meeting separated.

To-morrow nearly all the members now remaining will visit Bristol and Stonehenge. Accounts of these excursions we shall try to give next week. In the meantime some notes of the excursion to the Vallis on Saturday last will be found in another column, as will also an instalment of the Reports of Committees and Sectional work.

J. N. L.

THE EXCURSIONS.

Excursion to Frome, Hotwell, and the Vallis.

On Saturday the geologists and others mustered in large force to visit a district which has been made celebrated by Mr. Moore, the leader of the day's expedition, who, from his special knowledge of the peculiar interest attaching to the geology and palæontology of the district, had suggested it for examination.

In the programme some bold statements had been made; and it was pretty evident that, in the train, there followed some sceptics who were not prepared to endorse the views therein suggested—viz., that Mr. Moore would show that much of what was supposed to be carboniferous limestone in the district was as young as the lower lias, and that the ores of lead, calamine, &c., of the district were of much later date than that formation.

A genial sunshine had accompanied the party to their first halting-place—a little roadside quarry at Hotwell, past which many a geologist must have wandered. Here, mounted on a natural rostrum, with Phillips, Sanders, Etheridge, and others ranged on the sides of the section before him, Mr. Moore began a series of explanations which, throughout the day, not only carried conviction with them, but added greatly to the pleasure of the expedition.

In the first quarry Mr. Moore at once asked the geologists present the name of the formation on which they were met. The prompt reply was, The Carboniferous Limestone. To the amusement of all he showed the truth of the first part of his programme—that, instead, the quarry was *chiefly* of the age of the Lias. Other remarkable features in this small space were pointed out—that at the base there was a jutting rock of carboniferous limestone; that on this there rested a thin layer containing remains of Rhætic age, the stratum above being principally a conglomerate of Liassic age; and that resting on all was a thin deposit of inferior oolite—representing four geological formations within a thickness of twenty feet.

Next came a road-side quarry, from whence Mr. Moore derived the three tons' weight of Rhætic clay which had occupied him two years in examination, and from which he had obtained a million organisms, of the highest interest to science. The corner from whence it came was visited; and on the spot Mr. Moore stated that, from within three square yards, he had found twenty-three teeth of three genera of mammals, nine reptiles, including *Placodus*, *Psephoderma*, &c., fifteen genera of fishes, including 70,000 teeth of the *Lophodus* alone.

Proceeding through Nunney, a halt was made at the beautiful Chepstow-like castle, an account of which was given by the Rev. Mr. Wickham, who explained that the castle belongs to a very ancient family, which came over at the time of the Norman Conquest—namely, the Delamere family. The family settled in the neighbourhood. The style of the building was said to be Perpendicular, but he apprehended that it was built before the Perpendicular style came into vogue. The family sided with the royal cause at the time of the Commonwealth, and the Parliamentary forces besieged the place. In connexion with the siege an old story was told, that, when the garrison was reduced by famine, an unfortunate pig,—the only one left,—was taken out and thoroughly beaten daily; and the squeaking of the pig induced the besieging forces to believe that the garrison was not so badly supplied with food as they imagined. Unfortunately, however, for the garrison, a man managed to escape, and he passed over to the enemy; after which he gave information respecting the weak part of the castle—a portion of the walls being of a comparatively slight structure.

It is about thirty years ago that the remains of what had been a fine Roman villa were discovered at Watney, the place next visited. A handsome tessellated pavement has been preserved, and is now protected by a building. This was visited by a large number of the visitors; and Mr. T. Wright delivered some remarks in explanation of it. He said that these western districts of England appeared to have formed, under the Romans, the fashionable part of the island. The largest and most magnificent villas were scattered rather thickly over Somerset and Gloucestershire. The district of the villas extended westward over a good part of Hampshire, and thence through Berkshire, Oxfordshire, and Northamptonshire, and thence into Lincolnshire, where remains of some fine villas are found. In the south-east, contrary to what we might expect, villas of any importance appear to have been very rare; none have been found in the immediate neighbourhood of London; and, even in Kent, where we should naturally expect to meet with them, only a few have been discovered, and those of a comparatively mean character. There have been some considerable villas on the borders of the mountainous district of Wales; but none have been found in the northern counties. Mr. Wright explained briefly the nature of the tessellated pavement, the pecularities of that at Watney, and the subjects represented upon it; and he mentioned one, in the neighbourhood, on which was represented the Christian monogram, an almost solitary indication of the presence of Christianity in Britain under the Romans; and even this appeared, by its connexion with pagan subjects, to have been most probably placed there by a philosopher, who chose to have in his house representations of the different creeds existing in his days. The subjects represented in the Watney pavement were, in one part, fishes, no doubt intended as emblematical of water, and in another part animals of different kinds, including the elephant, to represent earth.

The party then proceeded to the Vallis, where other geological sections of great interest awaited the geologist. In the first Mr. Moore pointed out the precise junction of the oolitic with the carboniferous limestone formation, and showed that the *lithodomi* of the later period had excavated into the older; so that, when the rock was quarried, they might still find their shells in this position. In one corner of this section Mr. Moore found calamine resting on the inferior oolite, and, in a thin vein which passed down from the top, galena; whilst in another was a considerable deposit of sulphate of baryta, thus amply redeeming the promises of his programme.

Luncheon, generously provided by Lord Cork, the owner of Vallis, being announced, the party proceeded to the remains of a fine old Manor-house, but not before making the Vallis ring with three cheers for their day's leader.

After the usual loyal toasts, the Earl of Cork, in proposing Professor Phillips's health, remarked that he was proud to have the honour of entertaining Professor Phillips, the more so as he was connected with one of the first geological surveys made in England—that of the county of Somerset. Although he regretted the absence of the President of the Association, he was sure that he was present with the meeting in mind, and that they had his best wishes. In connexion with the toast he had to propose he would couple the name of the oldest member of the Association—namely, Professor Phillips.

Professor Phillips, in returning thanks, said he could declare most unaffectedly that he was surprised at being called upon to respond. If any one, in the infancy of the Association, had thought it possible that almost every county in England would have asked the Association to visit it—if it had been thought possible that tens of thousands of pounds would have been spent in connexion with it—and if it had been thought likely that 2600 members would have joined it—he ventured to say that the most sanguine persons would have pronounced these anticipations to be exaggerated.

Mr. Dickinson, in a deservedly complimentary speech, then proposed the health of Mr. Moore, who, in responding, remarked that it was a fortunate day for himself when his thoughts were directed to geological science; and this was caused by a curious circumstance. The school-house of his early days was being pulled down, when, from among the rubbish, a pebble had fallen out into the road; two of his fellow-schoolmates were playing with the pebble, when, and in the course of their play, it split. One portion ultimately came into his own hands, and he found in it a very fine *Pachychormus*—similar to those remains which he had exhibited in his Section on the previous day. He should have considered him a false prophet who would then have predicted that, from such a small beginning, he should ever have attained to the honour of addressing such an assemblage as the British Association. He had looked forward to the meeting at Bath for some years with much interest, and he felt gratified and honoured at having contributed, in however small a degree, to its success.

The Marquis of Bath proposed the health of the Earl of Cork, which that nobleman briefly responded to; and, in conclusion, proposed the health of the illustrious strangers, coupling with it the name of M. Hébert.

The health of Captain Burton was afterwards proposed, and responded to in a very few words; and, after the toast of "The Ladies," which was proposed by Sir H. Rawlinson, Captain Paget responded in a humorous speech, and the party separated.

PROFESSOR ROSCOE'S LECTURE.

The Lecture was delivered in the theatre, which was densely crowded. The Professor spoke as follows:—

"The direction of progress, which is chiefly characteristic of modern science, is, without doubt, the gradual establishment of the principle of the conservation of energy. This great landmark in science teaches that a loss or destruction of force is as impossible as a loss or annihilation

of matter; that all the exhibitions of activity going on around us are but changes of one form of energy into another; and that, therefore, the various forces—such as mechanical action, light, heat, electricity, magnetism, and chemical action—are mutually convertible, any one being capable of expression in terms of any other. The proof of the correlation and equivalence of the various forms of energy has been the work of some of the foremost minds of the century; and, thanks to their labours, we are now able to express the value of heat, electricity, magnetism, and chemical action in terms of common mechanics measured by the ordinary method of a weight raised through a given space. In the case of heat and mechanical action, especially, has this mutual equivalence been made apparent; and the fact that heat is but a mode of motion has been rendered plain, even to the general public. We are able not only to measure heat relatively with the thermometer, but absolutely in terms of our mechanical unit. We are now acquainted with the total amount of that life and force-sustaining radiation emanating from the sun, without which our earth would be a cold and barren mass, devoid not only of the animal and vegetable life with which it teems, but of the slightest breath of wind and the smallest drop of rain. We now know that the quantity of heat emitted by each square foot of the sun's surface every hour is equal to that generated by the combustion of 1500 lbs. of coal, or, expressed in a mechanical measure, this energy equals that work done by 7000 horses. If we then remember the sun's magnitude is such that its radius is larger than the distance from the earth's centre to that of the moon, we can form some idea of the enormous quantity of energy which is thus poured forth into space. The portion which falls upon the earth's surface of this enormous amount of heat, although it creates nearly all the motion and supports all the life with which our earth abounds, is but the $\frac{1}{2300000000}$th part of the total quantity emitted by the sun. This vivifying solar radiation of heat is very unequally distributed over the surface of our planet, mainly owing to the absorption effected by the atmosphere, giving rise to those differences of temperature producing the variety of climates seen on the earth's surface. These rays, which especially act to bring about change of temperature, are, however, not the only portions of the sun's radiation which produce effects upon the surface of our planet; we find, in addition, rays which produce little heating effect, but which affect the eye, and are termed rays of light, and we discover the existence of rays which are specially characterized by their power of effecting the decomposition of certain chemical substances, and hence have been called the chemical rays. If we decompose the white sunlight into its component parts, we find that the heating rays are the least refrangible, the maximum of heating effect being produced at a point extending beyond the limits of the visible red, whilst the heat-producing power of the spectrum gradually fades away as we go on, and is scarcely perceptible in the violet. Passing onwards, we see that the maximum of the light-giving rays exists in the yellow; this portion of the spectrum appears brightest to our eyes, whilst it fades off in intensity to either side. Further on we meet with a new class of rays which possesses very little heating power, and does not affect the eye strongly, but yet possesses a very remarkable property—viz., that of decomposing certain chemical compounds. We must, however, not forget that there is no difference of kind between these various rays; the heating rays and the chemically active rays only differ from each other as the red and the yellow rays differ—viz., in wave, length, and intensity of vibration. Although the total amount of the heat derived from the solar radiation has been measured, no method has, as yet, been generally adopted for measuring separately the varying amount of the chemically active portions of this radiation; and we are, therefore, unacquainted with the distribution of these chemical rays over the earth's surface, although, as we shall see, they are of primary importance as determining, to a great extent, the plant and animal producing power of a country. My object this evening, in the discourse which I have the honour of delivering, is to point out the interest and importance attaching to these chemically active rays, and to describe a method of measuring their varying intensity at any given spot upon the earth's surface, which, although it does not reduce these actions to the mechanical standard, gives us a relative measure for these rays, corresponding to the thermometric measurement of heat. Let me, in the first place, endeavour to give you some examples of the chemical action effected by light. I need do no more than refer, as a familiar example, to that most beautiful of modern arts, photography, illustrating, as it does, at once the simplest and the most complicated of the chemical actions of light. The simple actions consist in the decomposition of silver salts, chloride, bromide, and iodide by the light—in the blackening, for instance, of photographic paper in the sunlight; the most complicated of the actions are exemplified in that wonderful latent image formed upon the sensitive plate, the light having effected upon the chemical constituents a change which is invisible, even under the microscope, but which enables them to decompose when brought under the influence of certain deoxidizing agents—the developers of the photographers. The theory of the photographic process is at present in its earliest infancy. The art has progressed far; but, as is usually the case, the science follows only slowly. We know little about the composition of even the visible image; we know nothing about the kind of decomposition which occurs in the formation of the latent and invisible image; nor are we acquainted with the scientific explanation of the employment of the various re-agents used by photographers. A second illustration of the chemical action of light is the combination which light effects upon a mixture of the two elementary gases chlorine and hydrogen. I hold in my hand a small glass bulb filled with a mixture of exactly equal volumes of chlorine and hydrogen. These gases will remain for any length of time in contact without the slightest combination ensuing, if they are kept in the dark and kept cool; expose them but for one second to the direct sunlight, and combination ensues so rapidly that a sharp explosion occurs, owing to the great heat which is evolved. I have here the power of producing a light so rich in the chemically active rays that the result will be the same as if I threw the bulb into the sunlight. I wish next to illustrate the fact that only those of the sun's rays which exist at or near the violet end of the spectrum have the power to act thus chemically. The light evolved by phosphorus burning in oxygen contains so much chemically active light that it will explode the bulbs of chlorine and hydrogen. If, however, I burn the phosphorus in a globe of red glass, the chemically active blue rays cannot pass—they are all absorbed by the red colouring matter of the glass, and the bulb exposed to this light will not explode. If, on the other hand, I burn the phosphorus in a similar globe made of blue glass, the highly refrangible blue rays will pass through, and, falling upon the chlorine and hydrogen bulb, it will explode. As a third and last example of the chemical action of light, I would refer to the relation in which the chemical rays stand to vegetable life. If we examine the chemical constitution of vegetables, we find that they consist almost entirely, although the other constituents are necessary, of carbon, hydrogen, and oxygen—substances all contained in the atmosphere. When vegetable matter is destroyed by oxidation or burnt, carbonic acid and water are formed, and heat is evolved. It is upon this heat alone that animals exist; all their energy is thus heat thrown into other channels, and their forces are derived from those locked up in the vegetable organisms upon which they feed. Whence is this heat derived? How do plants, then, accumulate this store of energy? They obtain it from the sunlight. The plant absorbs the rapidly vibrating solar radiations, and stores them up ready to be again given out in various forms of energy when the vegetable organism is destroyed by oxidation. It is the sunlight which, acting upon the green colouring-matter of leaves, decomposes the carbonic acid of the air into its constituent elements enabling the plant to assimilate the carbon and to return the free oxygen back into the air for the subsequent use of animals. But, in this case, as with the chlorine and hydrogen, it is only the most refrangible, the blue portions of the sun's rays, which are able to effect this decomposition. I can illustrate this power which the green leaves possess of absorbing the chemically active rays, whilst leaves destitute of that colour allow the rays to pass through them without effecting any chemical decomposition. I have here some leaves of the variegated mint; a portion of each leaf is green, and a portion colourless. Both portions are equally transparent to common visible light, as we see when we throw the image of the leaves on the screen, by means of the lantern. Here I have a sensitized photographic plate, and I will place the leaves upon the sensitive surface, and then expose the leaves to a strong light, so that the rays must pass through the leaves before they reach the plate. I can show you that this light of burning magnesium wire possesses powerful chemical action, as it immediately causes a bulb of chlorine and hydrogen gases to explode when brought near. On developing the latent image thus produced, we shall see that none of the chemically active rays have passed through the green parts of the leaves to the sensitive plate, whilst the white portions have proved transparent to the chemical rays, and the film has, in those parts, been decomposed. Hence, too, in photographs, the leaves of trees through which the light has been transmitted appear black, whilst the light which is reflected from leaves contains chemical rays, and produces the proper effect. I need not enlarge upon the importance of the possession of a knowledge of the distribution of these rays on the earth's surface, when we remember that vegetation depends on these rays for its growth, and that the amounts of the chemical rays falling on a different spot are by no means proportional to the amounts of the heat-producing rays as measured by the thermometer. As the measurements of temperature on the earth's surface give rise to isothermal and isotheral lines, measurements of the chemical action of light at various points will give rise to curves of equal chemical intensity; and thus we shall obtain a truer measure of the climate than we possess at the present time. The method of measuring the combined chemical action of the sun and daylight, which I shall endeavour to explain, is, I believe, now so far perfect that it may be introduced for practical registration in meteorological observatories. The instrument which I hold in my hand is all that is needed for making the observations, and the curves of daily chemical intensity upon the diagrams (to which I shall again refer) show the kind of results thus obtained. For some years I have had the pleasure and advantage of being associated, in a series of researches upon the measurement of the chemical action of light, with a man whom I am proud to number amongst my most intimate friends—Professor Bunsen of Heidelberg—and to him I am glad to be able to ascribe the merit, if such be found, in the method which I shall endeavour to make plain to you. This method consists in the exact estimation of the time which a photographic paper of a constant degree of sensitiveness requires to be exposed to light in order to attain a certain given tint, it being ascertained that this same tint is always produced when the same amount of light falls upon the sensitive paper. Hence it was necessary to construct an apparatus in which photographic sensitized paper could be exposed to the sunlight for definite times, measured by small fractions of a second. This instrument consists essentially of a pendulum, vibrating about three-quarter seconds, by whose oscillation a sheet of darkened mica is withdrawn from and brought back over a horizontal strip of paper prepared with chloride of silver, and placed in a constant position relative to the pendulum and sheet of mica. The time during which each point in the length of the strip is exposed is different, and the time of exposure for each point can be calculated when the length and position of the strip and the duration and amplitude of the pendulum's vibration are given. The gradual diminution of shade from dark to light, and for each shade the time of exposure, are known. In order that such a graduated strip may serve as a means of measuring the chemical action of light, we require (1) to know the relation existing between the several tints, and the intensity of the light necessary to produce such tints; (2) to construct sensitive paper which shall always possess the same degree of sensitiveness, and can easily be prepared when required. It was found, by a long series of experiments, that it was possible, by adhering strictly to a certain method of manipulation, to prepare standard papers which, when made, possess a constant degree of sensitiveness; so that, if the same light falls upon them, the papers are always coloured to the same tint. Experiment likewise showed that the tint attained by such a paper was constant when the quantity of light falling upon it also remained constant; so that light of the intensity 50, falling upon the paper for the time 1, produced the same blackening effect as light of the intensity 1 falling upon it for the time 50. Knowing this law, which regulates the degree of shade of the paper, and having a surface of a perfectly constant degree of sensitiveness, it is easy to obtain absolute measurements of the chemical action of light. For this purpose an arbitrary unit of measurement is chosen by making a standard tint which can be easily and exactly reproduced at any time. The quantity of light which shall in a second, or unit of time, produce a blackening effect on the standard photographic paper equal to that of the standard tint is said to have the chemical intensity. If

the time needed to produce this same tint is found, by experiment with the pendulum photometer, to be two seconds, then the chemical intensity is one half; and so on. All that is needed, in order to obtain accurate measurements of the chemical action of diffused daylight or sunlight, is to be able to find the time necessary to effect a blackening of the normal paper equal in shade to the standard tint. This is done by means of the graduated strip made in the pendulum photometer. For the purpose of accurately comparing these tints the ordinary daylight, or even lamplight, cannot be used, as a change would thereby be produced on the sensitive paper. A light which does not act chemically must be used; such a light is the monochromatic soda-flame. I can easily show you that the yellow soda-flame contains no chemically active rays; for, as you see, its spectrum consists of one bright yellow line, devoid altogether of the power of decomposing the salts of silver. I cannot look upon this splendid yellow line without referring to the grand discovery of which this line has proved the keystone. I mean that of the chemical composition of the solar atmosphere by Kirchhoff. By observing the coincidence of this bright yellow line with the dark solar line D, and by reversing it, Kirchhoff was first led to the proof, soon afterwards rendered certain, of the actual existence of iron, magnesium, calcium, and other metals well known on this earth in the sun's atmosphere, at a distance of ninety-one millions of miles. The light from this flame possesses another advantage — namely, that the unavoidable differences of colour are not seen, variation in shade alone being perceptible. By help of this soda-flame the coincidence of shade of the graduated strip with the standard tint can be read off with the greatest precision. In order to measure the chemical intensity of the daylight at any time, all that is needed is to expose a strip of standard paper in the pendulum-photometer for a given number of vibrations, and then to find upon the strip thus exposed the point at which a shade equal to the standard tint has been produced. Reference to a table gives the time of exposure necessary to produce this tint, and the reciprocal of this time represents the intensity of the acting light. If the time necessary were three seconds, the chemical intensity would be one-third; if the time were half a second, the intensity would be two. In this way curves of daily chemical intensity have been obtained, which show the variation caused by clouds, or by the changing altitude of the sun. These curves show maxima and minima exactly corresponding to the appearance and disappearance of the sun behind a cloud. The difference between the sun's chemical intensity in summer and winter is thus also depicted. Based upon the principles of the pendulum photometer, a much simpler method of making these measurements has been arranged as follows:—A graduated strip made in the pendulum photometer is fixed in hyposulphite of soda, and pasted upon a board furnished with a scale. The shades of certain points on this fixed strip are compared with the shades on given points upon a graduated strip, prepared in the usual way, and not fixed in hyposulphite. The fixed strip may then be used as a means of measuring the chemical action of light. Small pieces of the standard paper are then exposed for a given time to the light which it is desired to measure, until the shade approaches that of a part of the fixed strip. The point of exact coincidence is then read off by the soda-flame as usual. In this way a piece of standard paper of one square inch of area will serve for twenty separate determinations, and the whole arrangement for exposure may be carried in the pocket. Determinations of the chemical action of the total daylight have thus been made at Manchester, at the most widely differing seasons of the year, and continued on consecutive days for a month. The diagrams on the screen show the nature of the results so obtained. In the first place, let us notice the difference in the amount of chemical action effected upon a cloudy and upon a cloudless day; the curve for the former is low, and the action does not rise above 0·18, whilst that for the latter is high, extending to 0·50 units. The sudden variations, too, of the chemical action which occur when the sun is obscured by a cloud, and again appear, are distinctly seen in the curves; the chemical action then falls, as it were, down a great precipice, and rises as rapidly when the sun shines. We also see the great difference which exists between the chemical action of sunlight in summer, autumn, and winter. On this diagram we have the curves of chemical action effected at Manchester on the summer and winter solstice and at the two equinoxes. From these curves we can estimate the relation between the chemical action on the above days, and we find that, if the chemical action on December 22nd, 1863, be taken as the unit, that on the autumnal and vernal equinox was 6·01°, and that at the summer solstice (June 22, 1864) was 18·56. The curves on the third diagram exhibit the chemical action occurring simultaneously at Heidelberg and Manchester on July 4, 1864. It was not a very fine day at Manchester when the observation was made. From these curves the great difference between the chemical brightness at two spots on the earth's surface, separated by less than 4° of latitude, can be seen, the total chemical action at Heidelberg on the above-mentioned day being more than three times as great as that at Manchester. If this method prove capable (as I expect it will) of general adoption for purposes of meteorological registration, we may look forward to obtaining from such observations very interesting information respecting the relative distribution of the chemical rays over the earth's surface. As another example of the measurement of the chemical action of light, I may mention that of the comparison of a terrestrial source of light with that of the sun. The light emitted by burning magnesium wire is exceedingly rich in chemical rays—so much so that this light may be used instead of sunlight for the purposes of photography. As an illustration of this, I will endeavour, with Mr. Brothers's assistance, to take a photograph of our President, if he will kindly permit me to do so. [Sir Charles Lyell here took a seat in front of the white board, and, by the light of burning magnesium wire, a negative was taken, from which a print was obtained in sufficient time to enable a capital positive to be thrown upon the screen by the aid of the oxy-hydrogen light before the audience dispersed.] The spectrum of burning magnesium is exceeding rich in violet and ultra-violet rays, partly due to the incandescent vapour of magnesium and partly to the intensely-heated magnesia formed by the combustion. So long ago as 1859 the chemically active power possessed by this light, compared with that of the sun, was determined, and the use of this light for the purposes of photography was proposed. The manufacture of this metal is now carried on, under Mr. Sonstadt's patent, by the Magnesium Metal Company of Manchester; and the light evolved by the burning wire will probably be applied to many other technical purposes. Some persons are sanguine enough to believe that it may be used for illuminating our streets; and I understand that the gentlemen who manufactured the metal have an application from the managers of the gas-works at Rio de Janeiro, who seem to think it would be better for them there to light with magnesium wire instead of gas. I believe this is a serious proposal; but we can scarcely expect that it will be carried out in practice."

REPORTS.

REPORT OF THE KEW COMMITTEE.

The Committee of the Kew Observatory submit to the Association the following statement of their proceedings during the past year:—

A set of self-recording magnetographs, of the same pattern as those at Kew, has been ordered by the Italian Government for Professor Donati of Florence. These have been completed by Adie of London, and despatched to their destination.

General Sabine has received letters from Mr. Meldrum, Director of the Mauritius Observatory, and from Mr. Ellery, Director of that at Melbourne, from which there seems to be a good prospect that, at no distant date, self-recording magnetographs may be in operation in these localities. This would be a result of very great scientific importance, since there are as yet none of these instruments established in the southern hemisphere.

The Committee have lost with regret the valuable services of Mr. Chambers, who left the Observatory about the middle of November last for an appointment in India. His place as magnetical assistant has been supplied by Mr. George Whipple, who has given much satisfaction in his new office.

The sum of £50 has been received from the Government Grant Fund of the Royal Society for the purpose of obtaining printed copies of magnetic curves. This has been spent in procuring photolithographic copies of a number of the most interesting traces simultaneously produced by the magnetographs at Kew and Lisbon. These have been published by the Kew and Lisbon observatories, and distributed to scientific men likely to take an interest in the subject.

A unifilar and dip-circle have been verified at Kew and forwarded to the Lisbon Observatory, and a self-recording electrometer, on Professor W. Thomson's principle, has also been despatched to that institution.

Two unifilars and two dip-circles have likewise been ordered by Colonel Walker, Director of the Trigonometrical Survey of India, and they are at present in the hands of the opticians.

The usual monthly absolute determinations of the magnetic elements continue to be made at Kew, and the self-recording magnetographs are in constant operation as heretofore, under the superintendence of Mr. Whipple, Magnetical Assistant.

Advantage has again been taken of these automatic records of the earth's magnetism by the committee engaged in the preparation of electrical standards, who have found it desirable for some of their experiments to ascertain the contemporaneous readings of the declination magnetograph.

The following papers having reference to Kew Observatory have been communicated to the Royal Society by Major-General Sabine, President of that body:—

1. "Results of Hourly Observations of the Magnetic Declination made by Sir Francis Leopold McClintock, R.N., and the Officers of the Yacht *Fox*, at Port Kennedy in the Arctic Sea, in the Winter of 1858-59; and a Comparison of these Results with those obtained by Captain Maguire, R.N., and the Officers of H.M.S. *Plover*, in 1852, 1853, and 1854, at Point Barrow."

2. "A Comparison of the most notable Disturbances of the Magnetic Declination in 1858 and 1859 at Kew and Nertschinsk; preceded by a brief Retrospective View of the Progress of the Investigation into the Laws and Causes of the Magnetic Disturbances."

A Table of the Mean Declination of the Magnet in each Decade from January 1858 to December 1863, derived from the observations made at the Magnetic Observatory at Lisbon, has been drawn up by Senhor da Silveira, Director of that Observatory.

This table exhibits the semiannual inequality to which that element is subject at Lisbon, and which is of the same nature as that derived from the Kew photographs by General Sabine.

Mr. Stewart, Superintendent of the Kew Observatory, in conjunction with Señor Capello of the Lisbon Observatory, has communicated to the Royal Society a paper entitled "Results of a Comparison of certain Traces produced simultaneously by the Self-recording Magnetographs at Kew and at Lisbon, especially of those which record the Magnetic Disturbance of July 15, 1863."

Mr. Stewart has likewise communicated to the same Society two short papers, one "On the Sudden Squalls of 30th October and 21st November, 1863," and another, entitled "Remarks on Sun-Spots." He has also communicated to the Royal Society of Edinburgh a paper on "Sun-Spots, and their Connexion with Planetary Configurations."

Mr. A. H. Burgess, M.A., being desirous to obtain magnetical instruction, is at present visiting the Observatory for the purpose of acquainting himself with our method of observation.

The meteorological work of the Observatory is now performed by Mr. Thomas Baker, who likewise takes charge of the photographic department connected with the self-recording instruments, and executes both offices very satisfactorily.

During the past year 97 barometers and 389 thermometers have been verified; and five standard thermometers have been supplied to men of science and opticians. A set of weights, a standard scale, and a measure of capacity have likewise been verified. The self-recording barograph continues in constant operation. Through an ingenious suggestion of Mr. Beckley traces in duplicate have been obtained, and one of these has been regularly forwarded to Admiral FitzRoy.

The self-recording electrometer of Professor W. Thomson has continued in constant operation until the beginning of August, when it was sent to the optician for repairs.

The arrangements at the Observatory for testing sextants remain as before. During the past year eight sextants, two quadrants, and one transit-instrument have been verified.

The sun-spots continue to be observed, after the method of Hofrath Schwabe of Dessau.

The Kew heliograph in charge of Mr. De La Rue has been continuously worked by a qualified assistant, under the immediate supervision of Mr. Beckley, who has proved of much service to the Committee in this as well as in other matters. During the past year 175 negatives have been taken, and four sets of positives have been printed from each, one of which has been presented to the

Royal Society. The negatives are being reduced under the superintendence of Mr. De La Rue, and by means of an instrument of his construction. Mr. B. Loewy, formerly assistant in the Flagstaff Observatory, Melbourne, has been engaged in this reduction, which he is executing very satisfactorily at Kew.

Mr. De La Rue is also having an arrangement made by means of which the proportion of the sun's disk obscured by spots may be conveniently measured.

At Mr. De La Rue's request, Mr. Loewy is now examining all pictures preserved at Kew, with reference to distribution of faculæ and general appearance; and it seems that, out of more than 500 groups hitherto examined, about 250 show a nearly equal distribution of faculous matter round the penumbra, while of the rest more than 200 have the faculæ decidedly, either entirely or mostly, on the left side. After concluding the examination, which will extend over more than 1000 spots, Mr. Loewy will submit the result to Mr. De La Rue.

The spectroscope belonging to the Chairman has been supplemented with a set of eleven sulphuret-of-carbon prisms, made by Mr. Browning, and giving the very great angular separation of more than 3′ between the two lines D. The Chairman has communicated a short description of these prisms, and of the appearance of the two lines obtained by this arrangement, to the Royal Society.

That portion of the spectrum between D and E is now being mapped, and all the measurements have already been made. The results obtained show that the position of any line can be determined with very great accuracy. Mr. Loewy has been the principal observer, and he seems well qualified for the work.

Preliminary arrangements have been made, under the superintendence of Professor Stokes, for experiments on the retardation of the pendulum in different gases.

At the request of the Secretary of State for India, received through the Royal Society, arrangements have been made for the preparation of apparatus to be used for the vibration of pendulums in vacuo at the different stations of the Trigonometrical Survey in India; and the request has also been made that the officer who may conduct this experimental investigation should receive instructions at this Observatory.

The instrument constructed by Mr. Broun for the purpose of estimating the magnetic dip by means of soft iron remains at present at the Observatory.

The balance of the £40 granted by the British Association in 1861 for an additional photographic assistant has been expended, under the superintendence of Mr. De La Rue, along with further sums which have been defrayed by Royal Society grants received by that gentleman.

The Superintendent has likewise received grants from the Royal Society for special experiments to be made at Kew; and when these are completed an account will be rendered to that Society. It will thus be seen that other experiments and observations of a nature to further science are made at Kew, besides those which form the constant work of the Observatory, and of these the spectroscope measurements at present in progress may be mentioned as an example. It will also be noticed that the British Association do not bear the expense of these experiments, but this is defrayed by those who bring them before the Committee.

From the financial statement which accompanies this Report it will be seen that the adverse balance of last year has been considerably reduced; but there is still a balance against this Observatory, amounting to £45. 17s. 9d. The Committee recommend that a sum of £600 should be granted for the expenditure of the current year.

A correspondence has taken place between the Astronomer-Royal and the Chairman relative to a paragraph contained in the Report of the former to the Visitors of the Royal Observatory.

The Astronomer-Royal has further suggested that certain experiments should be made in this Observatory:—

1st. For the purpose of investigating the discordances which he has found in his observations of the dipping-needle.

2nd. For the purpose of investigating the displacements which occur in the trace of his vertical-force photograph.

3rd. On the temperature corrections of the force of a magnet made by heating it in hot air instead of by hot water.

The Committee considered that it was not advisable to undertake the experiments suggested by the Astronomer-Royal, as one of these would necessarily involve the displacement of the Kew vertical-force magnetograph, while the others refer to points which, in the opinion of the Committee, have been already decided by previous observations and experiments.

J. P. Gassiot, Chairman.*

UNIFORMITY OF WEIGHTS AND MEASURES.

Report on the best Means of providing for a Uniformity of Weights and Measures, with reference to the Interests of Science: by a Committee consisting of Lord Wrottesley, D.C.L., F.R.S., the Right Hon. C.B., Adderley, M.P., Sir William Armstrong, C.B., F.R.S., the Astronomer-Royal, F.R.S., Samuel Brown, W. Ewart, M.P., T. Graham, F.R.S., Sir John Hay, Bart, M.P., F.R.S., Prof. Hennessy, F.R.S., James Heywood, M.A., F.R.S., Dr. Lee, F.R.S., Dr. Leone Levi, F.S.A., F.S.S., Prof. W. A. Miller, F.R.S., Prof. Rankine, F.R.S., Rev. Dr. Robinson, F.R.S., Col. Sykes, M.P., F.R.S., W. Tite, M.P., F.R.S., Prof. A. W. Williamson, F.R.S., and Frederick Purdy.

For a uniformity of weights and measures with reference to the interests of science, the Committee recommend to the British Association the following resolutions:—1. That it is desirable, in the interests of science, to adopt a decimal system of weights and measures. 2. That in furtherance of this proposal, it is desirable, from its scientific capabilities, to adopt the metric system. (Professor Rankine has dissented from the second Resolution.) 3. That, as the weights and measures of this country are gradually undergoing a process of decimalization, it would be more advantageous, instead of drifting by degrees into a heterogeneous variety of systems, to change at once to a really convenient system. 4. That it be recommended to the Government, in all cases in which statistical documents issued by them relate to questions of international interest, to give the metric equivalents to English weights and measures. 5. That, in communications respecting weights and measures presented to foreign countries which have adopted the metric system, equivalents in the metric system be given for the ordinary English expressions for length, capacity, bulk, and weight. 6. That it be recommended to the authors of scientific communications, in all cases where the expense or labour involved would not be too great, to give the metric equivalents of the weights and measures mentioned. 7. That the influence of the British Association would be beneficially exerted in obtaining from Paris an authorized set of metric weights and measures, to be placed in some public and frequented building in London. 8. That advantage will be derived from the recent publication of metric tables, by C. H. Dowling, C. E., in which British standard weights and measures are compared with those of the metric system (Lockwood & Co.); that treatises explaining the metric system, with diagrams, should be forthwith laid before the public; that works on arithmetic should contain metric tables of weights and measures, with suitable exercises on those tables; and that inspectors of schools should examine candidates for pupil-teachers in the metric system. 9. On the subject of temperature, it is recommended that the authors of Reports to be presented to the British Association relative to temperature be requested to give the degrees of heat or cold according to both the Centigrade and Fahrenheit's thermometers. 10. It is recommended that the scales of thermometers constructed for scientific purposes be divided both according to the Centigrade and Fahrenheit scales; and that barometric scales be divided into fractions of the mètre, as well as into those of the foot and inch. 11. That a committee on uniformity of weights and measures be re-appointed, with a grant of £20.

Prince Talleyrand, in 1790, distributed among the members of the Constituent Assembly of France a proposal, founded upon the excessive diversity and confusion of the weights and measures then prevailing all over that country, for the reformation of the system, or rather for the foundation of a new system upon the principle of a single and universal standard (Report of John Quincy Adams on Weights and Measures, p. 49: Washington, 1821).

A Committee of the Academy of Sciences, consisting of five of the most eminent mathematicians of Europe—Borda, Lagrange, Laplace, Monge, and Condorcet—were subsequently appointed, under a decree of the Constituent Assembly, to report upon the selection of a natural standard; and the Committee proposed in their report that the ten-millionth part of the quarter of the meridian of Paris should be taken as the standard unit of linear measure.

Delambre and Méchain were appointed to measure an arc of the meridian between Dunkirk and Barcelona. They commenced their labours at the most agitated period of the French revolution. At every station of their progress in the field-survey they were arrested by the suspicions and alarms of the people, who took them for spies or engineers of the invading enemies of France. The result was a very wonderful approximation to the true length, and one in the highest degree "creditable to the French astronomers and geometricians, who carried on their operations, under every difficulty, and at the hazard of their lives, in the midst of the greatest political convulsion of modern times" ("Essay on the Yard, the Pendulum, and the Mètre," by Sir John F. W. Herschel, Bart., K.H., M.A., F.R.S., &c., p. 19: London, 1863).

By means of the arc of the meridian measured between Dunkirk and Barcelona, and of the arc measured in Peru, in 1736, by Bougner and La Con damine, the length of the quarter of the meridian, or the distance from the pole to the equator, was calculated. This length was partitioned into ten millions of equal parts, and one of these parts was taken for the unit of length, and called a mètre, from the Greek word μέτρον (*a measure*) (Briot's "Arithmetic," translated by J. Spear, Esq., p. 152: Hardwicke, London, 1863).

If the arc of the meridian be calculated from the result of French researches, the mètre itself is equal, in English measurement, to 39·37079 inches; and, multiplying this length by 10,000,000, the length of the quadrant of the meridian, when converted into feet, will be 32,808,992 feet. Sir John Herschel estimates the length of the quadrant of the meridian at 32,813,000 feet; so that, according to his calculation, there is a difference between the French and the new estimate of the quadrant of 4008 feet, and therefore the French length of the quadrant is $\frac{1}{8194}$th too short, and the mètre is $\frac{1}{208}$th of an inch less than the length of the ten-millionth part of the quadrant.

An error of $\frac{1}{208}$th of an inch in the determination of the mètre is more than counterbalanced by the extreme simplicity, symmetry, and convenience of the metric system. Professor Bessel observed with respect to the mètre, that, in the measurement of a length between two points on the surface of the earth, there is no advantage at all in proving the relation of the measured distance to a quadrant of the meridian (Report of a Committee of the House of Commons on Weights and Measures, p. 109: 1862). Professor Miller of Cambridge, who quotes this remark, deems the error in the relation of the mètre to the quadrant of the meridian to be of no consequence; and he mentions another slight error in the metric system, discovered by recent research, and relating to the density of water, which he gives in the following words of Bessel (from the "Populäre Vorlesungen," by Professor Bessel, published in 1848, soon after his death):—

"The kilogramme (1000 grammes) is not exactly the weight of a cubic decimètre of water. Many of the late weighings show that water at its maximum density has a different density from that which was assumed by the French philosophers who prepared the original standard of the kilogramme; but nobody wishes to alter the value of the gram me on that account."

M. Chevalier stated to the Committee of the House of Commons on Weights and Measures, in 1862, that, in calculation, the metric system spares both time and labour, exactly as a good machine would do for spinning or weaving.

The metric system is considered by Sir William Armstrong to be "the only one which has any chance of becoming universal."

Two important principles form the basis of the metric system:—1. That the unit of linear measure, applied to matter, in its three forms of extension—viz., length, breadth, and thickness—should be the standard of all measures of length, surface, and solidity; 2. That the cubic contents of the linear measure, in distilled water, at a temperature of great contraction, should furnish at once the standard weight and measure of capacity.

Scientific advisers were summoned to the counsels of King Louis Philippe, on his accession to the French throne, and that monarch has the credit of having enforced the metric system in France.

Gutch's "Literary and Scientific Register" for 1864 (Stevens, 421, Strand) contains a useful comparison of metric and English measures, compiled by Mr. Warren De La Rue, F.R.S., in which

* This Report is accompanied with a Correspondence of the highest scientific value.—Ed.

the different quantities of the metric system are expressed in their English equivalents, and the value of several important English weights and measures is given in the terms of the metric system.

Until comparative tables of the English and metric systems had been published, the labour of converting English weights and measures into the metric system was so excessive that, when communications to scientific societies were published in England, with merely British weights and measures, such papers were frequently not translated in foreign countries, and the labours of the Englishman of science were consequently not appreciated beyond the limits of Anglo-Saxon dominions.

The metric system of weights and measures has been adopted, not only by France, but by Italy (except the portion under Pontifical Government), Spain, Portugal, Belgium, and Holland; it has been partially received in Switzerland, which adopts the half-kilogramme as the pound. The majority of the States composing the "Zollverein," or Customs League, in Germany, have expressed their approval of the metric system. The half-kilogramme has been introduced into all great mercantile operations in Austria.

At the International Statistical Congress, held at Berlin in September 1863, thirty-three nations of Europe and America were represented by statistical delegates, and the Congress agreed to the following fundamental resolution on weights and measures:—"The adoption of the same measure in international commerce is of the highest importance. The metric system appears to the Congress to be the most convenient of all the measures that could be recommended for international measures."

A commission of the Imperial Academy of Sciences in St. Petersburg has recommended that such alterations should be made in Russian weights and measures as would put them in conformity with the metric system of France. The Grand-Duke Constantine, brother of the Emperor of Russia, is in favour of the metric system; and Dr. Kupffer, a delegate from the Russian Government, has declared that Russia would recommend the adoption of the pure metric system if Great Britain would take the lead. "We wish England," said Dr. Kupffer, "to take the lead. England is a country of prior civilization. Let England do it, and we are sure to follow."

In the new Belgian law on weights and measures, the units of the metric system have been extended by adopting the doubles of each unit, and of its multiples and subdivisions. The Belgians have also adopted the principle of having weights representing 50, 20, 5, 2, and 1; and they have followed a similar arrangement with regard to measures of length and measures of capacity.

In Holland the law requires the use of the metric system in all things, except weighing medicines. The old Dutch names, such as "elle" and "palm," are preserved in the metric tables; the "elle" is the mètre (3·2809 feet), and the "palm" the decimètre (or 3·937 inches). A "kan" in Holland is the name for a litre, or 1·760 pint. In weights, the "ons" is the Dutch name for a hectogramme, (Woodhouse's "Weights and Measures of all Nations," p. 79) or 3·527 ounces; and a "pond" corresponds to the kilogramme (=2·205 lbs.).

In Spain the government has purchased 600 sets of metric weights and measures, and it intends to buy more, so that it may supply each important town with standards for comparison. On the Spanish railways distances are measured by kilomètres and weights by kilogrammes. Tables are published containing the equivalents of the old Spanish weights and measures in metric quantities, and calculated in each case from 1 to 1000.

Official tables are published in Portugal containing Portuguese measurements in metrical quantities, and *vice versâ*. Inspectors of schools, appointed by the general superintendents of weights and measures, have inspected 2720 public and private schools, and schools are established under the same superintendence to explain the new system (The Marquis d'Avila's Report, quoted in Ruggles's "Reports," p. 64). A great number of elementary works have been published in Portugal on metrical weights and measures for the use of schools, as well as for the public.

In the United States of America a committee has been appointed by Congress to consider the subject of metric weights and measures. The Confederate States of North America have also expressed a wish to introduce into their republic the metric system of weights and measures; and the same system has been adopted in Mexico, Chili, Peru, New Granada, Bolivia, Venezuela, and French and Dutch Guiana.

SECTIONAL PROCEEDINGS.

Section A.—Mathematical and Physical Science.

President—Professor Cayley, M.A., F.R.S, F.R.A.S., Sadlerian Professor of Mathematics in the University of Cambridge, and Correspondent of the Institute.

Vice-Presidents—Lord Wrottesley, F.R.S.; W. Hopkins, M.A., F.R.S.; Professor Price, F.R.S.; Professor Rankine, F.R.S.; Professor Sylvester, F.R.S.; Rev. Professor Chevallier, F.R.A.S.

Secretaries—Rev. George Buckle, M.A.; Professor Fuller, M.A.; Fleeming Jenkin, C.E.

Committee—Admiral Sir E. Belcher, F.R.S.; W. R. Birt, F.R.A.S.; Chas. Brooke, M.A., F.R.S.; A. Claudet, F.R.S.; Dr. Colenso; H. Ellis, F.R.A.S.; J. P. Gassiot, F.R.S.; Captain Galton, F.R.S.; J. H. Gladstone, F.R.S.; James Glaisher, F.R.S.; G. Griffith, M.A.; Professor Hennessy, F.R.S.; T. A. Hirst, F.R.S.; Dr. Lee, F.R.S.; J. N. Lockyer, F.R.A.S.; E. J. Lowe, F.R.A.S.; Commander Maury; Professor W. A. Miller, F.R.S.; Dr. Arnold Moritz; Rev. J. G. Mould, M.A.; A. F. Osler; Professor Phillips, F.R.S.; Rev. C. Pritchard, F.R.S.; W. H. L. Russell; Balfour Stewart, F.R.S.; Colonel Sykes, F.R.S.; W. Symons; W. Spottiswoode, F.R.S.; Professor Williamson, F.R.S.; Rev. T. W. Webb, F.R.A.S.

There was no opening Address in this Section.

Section B.—Chemical Science.

President—W. Odling, M.B., F.R.S., F.C.S.

Vice-Presidents—Sir B. C. Brodie, Bart., F.R.S.; C. G. B. Daubeny, M.D., F.R.S.; J. H. Gladstone, Ph.D., F.R.S.; W. A. Miller, M.D., V.P.R.S.; A. W. Williamson, Ph.D., F.R.S.

Secretaries—Professor Liveing, M.A., F.C.S.; A. Vernon Harcourt, M.A., F.C.S.; Robert Biggs.

Committee—F. A. Abel, F.R.S.; Dr. Thos. Anderson, F.R.S.E.; Dr. Attfield, F.C.S.; Dr. R. Bell, C.E.; F. Crace Calvert, Ph.D., F.R.S.; A. R. Catton; H. Deane, F.L.S.; B. Edwards, Ph.D.; Dr. W. Francis, F.L.S., F.G.S., F.R.A.S.; Rev. T. Furlong, M.A.; A. Gages; J. P. Gassiot, F.R.S.; Dr. J. H. Gilbert, Ph.D., F.R.S.; E. A. Hadow, F.C.S.; W. E. Heathfield, F.R.G.S.; G. W. Knox, B.Sc.; S. Macadam, F.R.S.E.; H. M. Noad, Ph.D., F.R.S.; B. H. Paul, Ph.D.; Professor Roscoe, F.R.S.; H. C. Sorby, F.R.S.; P. Spence, F.C.S.; W. Symons, F.C.S.; C. Tomlinson; Professor Tennant; Professor Voelcker; R. Warrington, F.R.S.; P. J. Worsley; Colonel P. Yorke, F.R.S.

The papers put down for this Section to-day were of considerable interest, and drew together a large attendance.

The President, on rising to deliver his opening Address, was received with applause. He said:—"At the Leeds meeting of the British Association in 1858, Sir John Herschel, who was then President of the Chemical Section, opened its proceedings with an introductory address of singular interest, and thereby established a precedent which, with a single exception, has been uniformly followed by successive occupants of the position which I have now the honour to hold. Following in his footsteps, *longo intervallo*, I in my turn now venture upon a few words of introduction to the proper business that we have in hand. In the first place, I may congratulate the Section upon the presence among us of so many distinguished chemists, including several of my more immediate predecessors. I need scarcely express the personal gratification I feel at meeting them here, nor say how much their presence relieves me from the feeling of responsibility and self-mistrust with which I undertook the honourable office so kindly entrusted to me by the committee, feeling now that, upon every occasion of difficulty, I shall have them to apply to for counsel and assistance.

"After the great diversity, or rather antagonism, of opinion which has existed for the last dozen years or so, I am almost bound to take a somewhat prominent notice of the substantial agreement which now prevails among English chemists as to the combining proportions of the elementary bodies and the molecular weights of their most important compounds. The present unanimity of opinion on this fundamental subject among those who have given it their attention is, I conceive, greater than has ever been the case since Dalton published his New System of Chemical Philosophy, more than half a century ago. As yet, indeed, the unanimity of practice falls considerably short of the unanimity of belief; but, even in this direction, great progress is being made, to which the publication of Miller's 'Elements of Chemistry,' Watts's 'Dictionary of Chemistry,' and Hofmann's 'Jury Report on the Chemical Products in the Great Exhibition,' will doubtless give a yet stronger impetus. As was well observed by Dr. Miller at a previous meeting of this Association, 'Chemistry is not merely a science; it is also an art, which has introduced its nomenclature and its notation into our manufactories, and in some measure even into our daily life. Hence the great difficulty of effecting a speedy change in chemical usages alike so time-honoured and intimately ramified. I propose, with your permission, to make a few remarks upon the history of this chemical reformation, more especially in connexion with certain points which some of its most distinguished leaders have scarcely, I think, correctly estimated. From the time when Dalton first introduced the expression 'atomic weight,' up to the year 1842, when Gerhardt announced his views upon the molecular constitution of water, there does not seem to have been any marked difference of opinion among chemists as to the combining proportions of the principal elements. That 1 part by weight of hydrogen, united with 36 parts by weight of chlorine to form a single molecule of hydrochloric acid, and with 8 parts by weight of oxygen to form a single molecule of water, was the notion both of Berzelius and Gmelin, who may be taken as representatives of the two chief Continental schools of theoretic chemistry. There was, indeed, no difference of opinion whatever between them as to the combining proportions of the three elements. Using the hydrogen scale of numbers, both chemists represented the combining proportions of hydrogen as 1, that of chlorine as 36, and that of oxygen as 8. Both, moreover, represented the molecular weight of hydrochloric acid as 37 and the molecular weight of water as 9. True it is that Berzelius professedly regarded the single combining proportions of hydrogen and chlorine as consisting each of two physical atoms; but, since the two atoms of hydrogen, for instance, which constitute the one combining proportion of hydrogen, were chemically inseparable from one another, they were really tantamount to one atom only of hydrogen, and, as a matter of fact, were always employed by Berzelius as representing the single chemical atom of hydrogen, or its smallest actual combining proportion. Distinguishing thus between the physical atom and the combining proportion, Berzelius's recognition of the truth that equal volumes of the elementary gases contain an equal number of atoms was utterly barren. But, identifying the physical atom with the combining proportion, Gerhardt's recognition, or rather establishment of the broader truth, that equal volumes of all gases, elementary and compound, contain the same number of atoms, has been in the highest degree prolific. From Gerhardt's division of volatile bodies into a majority whose recognised molecules corresponded respectively with four volumes of vapour, and a minority whose recognised molecules corresponded respectively with but two volumes, and from his proposal, in conjunction with Laurent, to double the molecular weights of these last, so as to make the molecules of all volatile bodies, simple and compound, correspond each with four volumes of vapour, must, I conceive, be traced the development by himself and others of the matured views on chemical philosophy which now prevail. With every respect for my distinguished predecessor in this chair, and for the accomplished author of the 'Leçons de Philosophie Chimique,' from neither of whom do I ever venture to differ without fear and trembling, I cannot join with them in regarding the initiation of Gerhardt's system as an imperfect return and its remarkable maturation in these recent days as a more complete return to the notions of Berzelius. It is true that the elementary weights now employed, with the exception of those for some half-dozen metals, are identical with the atomic weights of Berzelius; but so different are they from his combining weights that fully four-fifths of all known compounds have to be expressed by formulæ entirely different from his—namely, all those bodies, with but very few exceptions, into which hydrogen, fluorine, chlorine, bromine, iodine, nitrogen, phosphorus, arsenic, boron, and the metals lithium, sodium, potassium, silver, and gold, enter as constituents. Fully admitting that the new system of atomic weights, as it now exists, is the joint product of many minds—fully admitting that it owes its present general acceptance chiefly to the introduction of the water type by Williamson during Gerhardt's lifetime, and the recognition of diatomic metals by Wurtz and Cannizzaro, after his decease—and fully admitting, moreover, that some of Gerhardt's steps in the development of his unitary system were decidedly, though perhaps excusably, retrograde, I yet look upon him, not I trust with the fond admiration of the pupil, but with the calm judgment of the chemist, as being the great founder of that modern chemical philosophy in the general spread of which I have already ventured to congratulate the members of the Section. Prior to the time of Gerhardt, the selection of molecular weights for different bodies, elementary and compound, had been almost a matter of hazard. Relying conjointly upon physical and chemical phenomena, he first established definite principles of selection, by pointing out the considerations upon which the determination of atomic weights must logically depend. Relying upon these principles, he established his classification of the non-metallic elements into monhydrides, represented by chlorine; dihydrides, represented by oxygen; terhydrides, represented by nitrogen, &c.; and, relying upon the same principles, but with a

greatly increased knowledge of phenomena, later chemists have given to his method a development and unity, more especially as regards the metallic elements, which have secured for the new system the impregnable and acknowledged position which it at present occupies. The comparative unanimity which prevailed before the time of Gerhardt was the unanimity of submission to authority; but the greater unanimity which now prevails is the unanimity of conviction consequent upon an intermediate period of solitary insurrection, general disturbance, and ultimate triumph.

"Bearing in mind how much the origin of the new system by Gerhardt, and its completion by his colleagues and disciples, are due to a correct appreciation of the harmony subsisting between chemical and physical relations, we cannot but give a hearty welcome to any large exposition of mixed chemico-physical phenomena; and, whether or not we agree with all his conclusions, there can be but one opinion as to the obligation chemists are under to Professor Kopp of Giessen for the great addition he has recently made to our knowledge and means of obtaining a further knowledge of what has hitherto been but a very limited subject—namely, specific heat.

"The agreement of chemists as to the elemental atomic weights is tantamount to an agreement among them as to the relative quantities of the different kinds of matter which shall be represented by the different elemental symbols; and this brings me to the subject of chemical notation. At one time many chemists even of considerable eminence believed and taught that Gerhardt's reformation had reference mainly to notation, and not to the association and interpretation of phenomena, and it became rather a fashion among them to declaim against the puerilities of notational questions. That the idea is of far greater importance than the mode of expressing it is an obvious truism; but, nevertheless, the mode of expression has an importance of its own as facilitating the spread of the idea, and more especially its development and procreation. It has been well asked, In what position would the science of arithmetic have been but for the substitution of Arabic for Roman numerals? the notation in which value is expressed by the change in position for that in which it is expressed mainly by the repetition of a few simple signs. It is unfortunately too true that chemical notation is at present in anything but a satisfactory state. The much-used sign of addition is, I conceive, about the last one would deliberately select to represent the fine idea of chemical combination, which seems allied rather, I should say, to an inter-penetration than to a coarse apposition of atoms. The placing of symbols in contiguity, or simply introducing a point between them, as indicative of a sort of multiplication or involution of the one atom into the other, is, I think, far preferable; but here, as pointed out by Sir John Herschel, we violate the ordinary algebraic understanding, which assigns very different numerical value to the expressions xy and $x + y$ respectively. I know, indeed, that one among us has been engaged for some years past in conceiving and working out a new and strictly philosophical system of chemical notation by means of actual formulæ, instead of mere symbols; and I am sure that I only express the general wish of the Section when I ask Sir Benjamin Brodie not to postpone the publication of his views for a longer time than is absolutely necessary for their sufficient elaboration. In any case, however, the symbolic notation at present employed, with more or less modification of detail, must continue to have its peculiar uses as an instrument of interpretation; and hence the importance of our endeavouring to render it more precise in meaning and consistent in its application. Many of its incongruities belong to the very lowest order of convention; such, for example, as the custom of distinguishing between the representation of so-called mineral and organic compounds, one particular sequence of symbols being habitually employed in representing the compounds of carbon, and an entirely different sequence of symbols in representing the more or less analogous compounds of all other elements. Now that organic and mineral chemistry are properly regarded as forming one continuous whole, a conclusion to which Kolbe's researches on sulphuretted organic bodies have largely contributed, it is high time that such relics of the ancient superstition that organic and mineral chemistry were essentially different from one another should be done away with.

"Although, during the past year, the direct advance of that crucial organic chemistry, the synthesis of natural organic bodies has not been striking, yet, on the other hand, its indirect advance has, I submit, been very considerable. Several of the artificially produced organic compounds, at first thought to be identical with those of natural origin, have proved to be, as is well known, not identical, but only isomeric therewith. Hence, *reculer pour mieux sauter*, chemists have been stepping back a little to examine more intimately the constitution both of natural organic bodies and of their artificial isomers. The synthetic power having been allowed of putting the bricks together in almost any desired way, it is yet necessary, in order to construct some particular biological product, to first learn the way in which its constituent bricks have been naturally put together. We accordingly find the study of isomerism, or what comes to the same thing, the study of the intimate constitution of bodies, is assuming an importance never before accorded to it. Isomerism is, in fact, the chemical problem of the day, and concurrently with its rapidly advancing solution, through the varied endeavours of many workers, will be the advance in rational organic synthesis. It is curious to note the oscillations of opinion in reference to this subject. Twenty years ago the molecular constitution of bodies was perceived by a special instinct, simultaneously with, or even prior to, the establishment of their molecular weights. Then came an interval of scepticism, when the intimate constitution of bodies was maintained to be not only unknown, but unknowable. Now we have a period of temperate reaction not recognising the desired knowledge as unattainable, but only as difficult of attainment. And in this, as in many other instances, we find evidence of the healthier state of mind in which, now more perhaps than ever, the first principles of chemical philosophy are explored. Speculation, indeed, is not less rife, and scarcely less esteemed than formerly, but is now seldom or never mistaken for ascertained truth. Scepticism, indeed, still prevails—not, however, the barren scepticism of contentment, but the fertile scepticism which aspires to greater and greater certainty of knowledge. Chemical science is advancing, I believe, not only more rapidly, but upon a surer basis than heretofore; and, while with every advance the prospect widens before our eyes, so that we become almost alarmed at contemplating what those who come after us will have to learn, we console ourselves with the determination that their labour of unlearning shall be as little as possible—far less, we hope, than what we in our time have had to experience."

Section C.—Geology.

President—J. Phillips, M.A., F.R.S., F.G.S., Professor of Geology in the University of Oxford.

Vice-Presidents—Sir W. Logan, F.R.S.; Earl of Enniskillen, F.R.S.; Professor Harkness, F.R.S.; W. Sanders, F.R.S.; Rev. W. Symonds, F.G.S.; Professor H. D. Rogers.

Secretaries—H. C. Sorby, F.R.S.; W. Pengelly, F.R.S.; W. B. Dawkins, F.G.S.; J. Johnston.

Committee—D. T. Ansted, F.R.S.; Sir W. Armstrong, F.R.S.; W. H. Baily, F.G.S.; E. W. Binney, F.R.S.; C. C. Blake, F.G.S.; H. B. Brady, F.L.S.; Professor R. Bell; A. Brady, F.G.S.; Rev. C. H. Cholmeley; Dr. Daubeny, F.R.S.; R. Etheridge, F.G.S.; R. A. Eskrigge; J. S. Enys, F.G.S.; John Evans, F.R.S.; F. G. Finch, F.G.S.; Dr. Gibb, F.G.S.; Major Guise, F.G.S.; M. A. Gages; H. T. Hall; Professor Hennessy, F.R.S.; M. E. Hebert, Foreign Member Geol. Soc., London; J. G. Jeffreys, F.R.S.; Professor T. R. Jones, F.G.S.; J. W. Lubbock, F.R.S.; J. E. Lee, F.G.S.; John Leckenby, F.G.S.; R. Lightbody; Sir R. I. Murchison, F.G.S.; C. Moore, F.G.S.; G. H. Morton, F.G.S.; G. W. Ormerod, F.G.S.; F. R. Polwhele, F.G.S.; Professor W. B. Rogers; C. B. Rose, F.G.S.; H. Seeley, F.G.S.; H. C. Salmon, F.G.S; W. A. Sanford, F.G.S.; W. W. Stoddart; W. Warrington Smyth, F.R.S.; J. W. Salter, F.G.S.; Professor Tennant, F.G.S.; Rev. H. B. Tristram, F.G.S.; W. Vicary, F.G.S.; H. Woodward, F.G.S.; Rev. H. H. Winwood, F.G.S.; J. W. Woodall, F.G.S.; Rev. T. Wiltshire, F.G.S.; W. Whitaker, F.G.S.; G. S. Worthy; Dr. Wright, F.G.S.; J. Yates, F.R.S.

We give the President's admirable Address in full:—"The age of geological discovery is by many persons thought to have passed away with Hutton and Werner, Humboldt and Von Buch, Smith and Cuvier, Conybeare and Buckland, Forbes and De la Beche; and they regard as almost final the honoured researches of Sedgwick and Murchison and Lyell. Yet, in this very district, the most carefully examined, perhaps, of all the richly fossiliferous tracts of England, our friend Mr. C. Moore is finding a multitude of interesting forms of life of the later triassic age, and is thus enriching in an unexpected manner the catalogue of fossils in Britain. Nor is the practical application of our science less actively exercised. In this very district Mr. Sanders has just completed that admirable Survey of the strata on the large scale of four inches to a mile, and showing every field, which is suspended before you. Sir R. Murchison has informed us of the further proof of the extension of coal under the Permians of Nottinghamshire; and at this very meeting we receive through the same channel, from Mr. M'Kenzie, the news of the finding of an additional bed of coal in Australia, thirty miles from any former known site of coal, the bed being thirty-eight feet thick and of good quality.

"Nothing is better settled than the series of great events in our geological history; yet even now we are rejoicing over the large addition made to this history by the discovery of the richly fossiliferous beds of St. Cassian and Kössen, by which the triassic fauna is enlarged and the means of comparing Palæozoic and Mesozoic life augmented by some hundreds of forms, including some genera of the older and others of the newer systems. The Director of the National Survey has decided to give to these strata in England and Wales a distinct colour on his map and a definite name.

"But a few years since the varied strata of marine and freshwater origin above the chalk were carelessly, if not contemptuously, classed as 'superficial deposits;' now they have acquired a large and regular history, embracing a great succession of organic life in the sea and on the land, which is appropriately crowned by the works of intelligent man. Not long since the 'diluvium' or 'drift' was merely an ill-understood basis for ill-considered speculation; now we have classified its parts, have begun to survey the movements of land and sea which preceded and accompanied these latest superficial accumulations, and have even ventured to apply to them measures of time in a continuous chronology.

"The new problems opened by these researches, the inferences to which they lead, and the speculations which they suggest, require only to be named. How to explain the all-but-universal glaciation of the mountain regions of Europe—once, or perhaps twice, since the era of the Crag; how to trace the course and limits of those gelid waters which since that era rose to half the height of Helvellyn and Snowdon; how to account for the changes of physical geography which allowed Hippopotami to be buried in the sediments of a Yorkshire river, troops of Mammoths to crowd the Cotswold Hills, and the mingled remains of Reindeer and Man to fill the caverns of the South of France—these and many more questions of equal importance occupy the attention of geologists and give a special interest to the later geological periods.

"In each of these cases, and in all which come before geologists for interpretation, there is one general rule—we compare always the ancient phenomena with the most similar effects we can find of forces now in action.

"As, in existing nature, the amount of effect produced by known causes varies with the conditions of each case—as the sun's effect varies from hour to hour, from day to night, from summer to winter, and from year to year—as the force of moving water is greater or less according to the slope of the ground and the sea's movement is modified by the age of the moon and the position of land—so in earlier nature the combinations of phenomena varied and the measures of effect were modified accordingly. In another point of view the aspect of nature is found to be variable, and subject to cycles of change, periods of greater and less effect of particular forces which in their own nature are constant. The distance of the earth from the sun is not constant; the form of its orbit is not constant; it was not always nor will always be nearer to the sun in winter than in summer. From these varied conditions, which are measured by long astronomical periods, cycles of greater and less heating effect on the earth in general, and on parts of it in particular, arise; so that speculations as to the causes of the differences of climate during geological periods are entirely incomplete if we leave out of view these real and definite sources of terrestrial vicissitude. Whether they are sufficient, and justly applicable to the facts established in geology, is a proper subject of deliberate inquiry.

"Among the facts put in evidence by geology regarding the former condition of the land and sea, none are so convincing of great change and systematic diversity as the remains of plants and animals. By appeals to these innumerable witnesses conclusions of much importance are maintained touching the greater warmth of the carboniferous land and the colder climate of the later Cænozoic seas. By the same testimony it appears that over every part of the earth's surface, in every class of organic life, the whole series of created forms has been changed many times.

"Have we measured these changes of climate, and assigned their true physical causes? Have we determined the law of the successive variations of life, and declared the physiological principles on which the differences depend? *No!* the variations of climate must be further investigated, the limits of specific diversity more surely defined, before we can give clear answers to these critical questions.

"Late researches, partly archæological and partly geological, both in England and France, have been held to prove the contemporaneity of Man and the Mammoth in the northern zones of the world. Have we, then, been too confident in our belief that the human period was long posterior to, and strongly marked off from, that of the Cavern Bear and the woolly Rhinoceros? Did the races of Hyena and Hippopotamus remain inhabitants of Europe till a comparatively modern epoch, or was Man in possession of the earth in times far earlier than history and tradition allow?

"The prevalent opinion seems to be that, as variations of the forms of life are extremely slow in existing nature, for every case of considerable change in the predominant types of ancient plants and animals very long intervals of time must be allowed to have elapsed. If, in some thousands of years of human experience, no very material change has happened in our wild plants or wild animals, or in cultivated grains or domestic birds and quadrupeds, it is evident that no considerable changes of this kind can arise from such causes as are now in action without the aid of periods of time not contemplated in our chronology. Estimated in this way, the antiquity of the earth grows to be inconceivable—not to be counted by centuries or myriads of years—not to be really compassed by the understanding of men whose individual age is less than a century, and whose histories and traditions, however freely rendered, fall short of a hundred centuries. The whole human period, as we have been accustomed to view it, is but a unit in the vast sum of elapsed time; yet, in all those innumerable ages, the same forces were seated in the same particles of matter, the same laws of combination prevailed in inorganic and in living bodies, the same general influences resided on the surfaces or governed the masses of the planets in their ever-changing paths round the sun.

"All natural effects are performed in time, and, when the agency is uniform, are in proportion to the time. And, though the agency be not uniform, if the law of its variation be known, the time consumed in producing a given effect can be determined by calculation. Geological phenomena of every order can be expressed in terms of magnitude, as the uplifting of mountains, the deposition of strata, the numerical changes of the forms of life. The time required to produce these effects can be calculated if we know at what *rate* in time, whether uniform or not, they were produced; if we know not the true rate, but the *limits* within which it must have operated, the result of the calculation will have a corresponding uncertainty; if we have no knowledge of the rate, calculations are out of the question.

"In applying this general view to the history of the earth, philosophers of eminence in physical science have employed different considerations and obtained a variety of results. The conclusions of two eminent mathematicians which have lately appeared may be cited with advantage.

"A careful computation by Professor W. Thomson, on selected data which determine the rate of cooling of earthy masses, assigns 98,000,000 years for the whole period of the cooling of the earth's crust from a state of fusion to its present condition; so that, in his judgment, within one hundred millions of years all our speculations regarding the solid earth must be limited (*Phil. Mag.*, Jan. 1863).

"On the other hand, Professor Haughton finds, from the data which he adopts, 1018 millions of years to have elapsed while the earth was cooled from 212° F. to 122° F., at which temperature we may suppose the waters to have become habitable, and 1280 millions of years more in cooling from 122° to 77°, which is assumed to represent the climate of the later Eocene period in Britain. Computations of this kind cannot be applied except on the large scale here exemplified; and they lose all their value in the eyes of those who deny the general doctrine of a cooling globe (Appendix to a Lecture on Geology, in THE READER, Feb. 1864). Much as these periods exceed our conception, they appear to be in harmony with the results of astronomical research, which contemplates spaces, motions, and cycles of periods too vast for words to express, or numerals to count, or symbols to represent.

"The greatest difficulty in obtaining trustworthy results as to elapsed time is found where it was least expected—among the later Cænozoic deposits from rivers and lakes, and on the variable shores of the sea. This is the more disappointing because within this period falls the history of the human race. Taking as its earlier limit the latest wide prevalence of glaciers in Europe, attempts have been made to measure its duration by several processes. Quite recently Mr. Croll (*Phil. Mag.*, Aug. 1864) recalls attention to an astronomical cause of change of temperature—the varying eccentricity of the earth's orbit—by which, in a small degree, the total *quantity* of heat received in the earth in a year, and in a much greater degree the *distribution* of this heat on the opposite circumpolar spaces, are altered*. The effect of this at particular epochs would be, on one hemisphere an approximate equality of summer and winter heat, on the other an augmented difference between them. If, at the epoch of maximum eccentricity, the earth was in aphelion during our winter, a great accession of snow might arise and be continued for ages, and glaciers have a large augmentation; under the contrary circumstances, less snow and shortened glaciers. To this latter condition the present state of the north corresponds; and, by consulting the astronomical tables, it appears that a condition of extreme glaciation, dependent on the maximum eccentricity of the earth's orbit, cannot have happened within the last 100,000 years. This, it will be remembered, corresponds with the conjecture of our President regarding the possible antiquity of the fluviatile gravel-beds with flint implements at St. Acheul, and with the computation of M. Morlot of the age of the oldest gravel-cone of La Tinière on the Lake of Geneva, which he supposes to have followed the latest extreme extension of glaciation in the Alps.

"Quite a different conclusion, however, was presented a few years since by a German mathematician, Herr Adhemar ('Revolution des Meeres,' Leipzig, 1843), who, reflecting on the difference of mean annual temperature of the two hemispheres of the earth—dependent on the inequality of the half-yearly periods, *our* hemisphere having now the advantage of position—finds that, within each half 'tropical' period (about 10,500 years), snows would gather and glaciers thicken round one pole, to be afterwards melted while glaciation was spreading round the other. Thus periodical deluges, at intervals of 10,500 years, are found by this inquirer to be part of the system of nature.

"The opinion, however, has long been growing among geologists that it is rather by rising and falling of the land and displacement of the sea that the alternations of snows and floods must be explained which are admitted to have visited the mountain regions of the north. In Switzerland two great extensions of ice in former times have been traced by Escher and the eminent geologists of that country, the latter one corresponding, perhaps, to the age of our glacial drift.

"The melting of snow and ice in the valleys of the Alps is far more rapid under the influence of certain winds than by the direct effect of sunshine. Withdraw the hot Föhn for a season, the glaciers would renew their advance; let it cease, or lose its specific action for a century, the progress of the ice would be considerable. In many centuries the Rhône glacier might reach again to Sion, Villeneuve, and Lausanne—in many thousands of years all the valleys, and lakes, and borders of the Alps might be reoccupied by ice.

"Now the southerly wind, which so rapidly strips the Alpine peaks of their snows, draws its melting power from the hot northern tracts of Africa. Were these tracts again covered, as once they were, with an expansion of the Mediterranean, the wind would lose its excessive dissolving power, snows would gather above, and glaciers extend below to levels and distances now quite unattainable without some great physical change.

"*Great physical change*, then, is the inevitable antecedent to extensive glaciation and abundant dissolution of ice round the mountains of the north. Astronomical vicissitudes returning in cycles of long duration, changes of level of the land, expansions and contractions of the sea, deviations of the currents of the ocean, alterations in the prevalent direction and quality of the winds—whichever of these causes we assume, and however we combine them, it is evident that we are appealing from the existing order of nature and the present measures of effect in time to some other combination of natural agencies, some other standard of physical energy. The conclusion is obvious. Inductive geology refuses to accept definite periods for phenomena produced under conditions not yet really determined.

"I will not, by any further observations, discourage you from exploring this attractive field of research, or restrain the freedom with which you will desire to discuss it. Only let me add that, to one fresh from the Alps—from the old Pfahlbauten of the lakes, and much older monuments of overspreading snow and gliding ice—the later ages of geology and the earlier ages of mankind seem to be fairly united in one large field of inquiry. That it must be trodden with heedful steps, and demands all possible care in the scrutiny of facts, in the estimation of natural agencies, and in the choice of right measures of time, before the Pleistocene, Quaternary, or Human period can be said to be accurately known by natural phenomena, even in this the best-examined part of the world, is obvious.

"But the same remark applies to every one of the many perplexing questions which have been considered by geologists. By following the same good processes of strict inquiry and cautious interpretation which have settled those difficulties we may hope to settle this. Let every one join in the effort, and bring selected materials to the growing fabric; so that we may not erect a rude and barbarous cairn, the memorial of dead opinions, but construct a temple of well-fitted stones, in which we may worship with delight the God of Truth, and be followed in the same pleasing duty by many successors."

* Consult on this subject generally the valuable communication of Sir J. Herschel to the Geological Society—Proc., vol. i., p. 244, for Dec. 1830.

Section D.—Zoology and Botany.

President—J. E. Gray, Ph.D., F.R.S.

Vice-Presidents—C. Spence Bate, F.R.S.; Professor Babington, F.R.S.; Professor Balfour, F.R.S.; Dr. Daubeny, F.R.S.; J. Gwyn Jeffreys, F.R.S.; Dr. J. D. Hooker, F.R.S.; Rev. Leonard Jenyns, F.R.S.; Sir John Richardson, F.R.S.; Dr. Thomson, F.R.S.

Secretaries—E. Perceval Wright, M.D., F.L.S.; H. T. Stainton, F.L.S.; C. B Broome, F.L.S.; H. B. Brady, F.L.S.

Committee—Dr. R. Alexander Prior; Professor Robert Bell, C.E.; C. Carter Blake, F.G.S.; Joseph Beck; P. P. Carpenter; Joshua Clarke, F.L.S.; H. S. Cobbold, M.D., F.R.S.; Dr. Collingwood, F.R.S.; Henry Deane, F.L.S.; M. de Candolle; Walter Elliot, F.L.S.; Henry S. Ellis; Dr. Wilbraham Falconer; Major Guise, F.L.S.; Sir William Jardine, Bart., F.R.S.; Dr. Heaton; Rev. Thomas Hincks; Dr. Kirk; John Lubbock, F.R.S.; J. Leckenby; Dr. Müller; R. McAndrew, F.R.S.; Thos. T. Moore; Rev. A. M. Norman; Professor Nilsson; T. G. Rylands, F.L.S.; Professor Rolleston; W. Sandford; P. L. Sclater, Ph.D., F.R.S.; Dr. Scott; Charles Stuart; Rev. W. Symonds; Rev. H. B. Tristram, F.L.S.; Dr. W. Turner; A. R. Wallace; H. C. Watson, F.R.S.; George S. Worthy; T. V. Wollaston; Dr. Welwitsch; Dr. R. Wight, F.R.S.; James Yates, F.R.S.

THIS Section met at eleven o'clock, in the west wing of the Mineral Water Hospital, under the presidency of Dr. Gray, and was very fairly attended, there scarcely, at any period of the sitting, being less than about 100 Associates present.

We shall give the President's Address next week.

Sub-Section D.—Physiology.

President—Edward Smith, M.D., LL.B., F.R.S.

Vice-Presidents—Professor Acland, M.D., F.R.S.; John Davy, M.D., F.R.S.; Wilbraham Falconer, M.D.; Thomas Hodgkin, M.D., F.R.S.; Professor Rolleston, M.D., F.R.S.

Secretaries—J. S. Bartrum; Wm. Turner, M.B., F.R.S.E.

Committee—F. T. Bond, B.A., M.D.; C. Broome, M.A., F.R.S.; Professor Bennett, M.D., F.R.S.E.; — Boycott, M.D.; Charles Brooke, M.A., F.R.S.; T. Balding; T. S. Cobbold, M.D., F.R.S., F.L.S.; C. Collingwood, M.D.; E. Crisp, M.D., F.Z.S.; J. T. Dickson, F.L.S.; — Fearnside, M.D.; George D. Gibb, M.D., LL.D., F.G.S.; R. T. Gore, F.L.S.; Alfred Haviland; Radcliffe Hall, M.D.; — Heaton, M.D.; K. King, M.D.; David D. Logan, M.D.; — Lewis, M.D.; Thomas Nicholson, M.D.; W. H. Ransom, M.D.; B. W. Richardson, M.D.; A. B. Shepherd, M.A.; Rev. John Slatter, M.A.; John Soden; John Thurnam, M.D., F.S.A.

THIS Section was presided over by Dr. Edward Smith, LL.B., F.R.S., who read a long and most interesting paper on the present state of the dietary question, of which we give the following abstract:—He adverted to the fact that, out of 700 poor-law dietaries of paupers in workhouses, not two were alike. The condition of the dietary of the army and navy was, until recent years, most deplorable. At the latter end of the last, and early part of the present, century, scurvy, due to ill-selected food—biscuits which could not be broken, and salt meat that could not be cut—was rife even in our national navy; and inquiries made by Dr. Budd some twenty years ago, and by Dr. Barnes this year, had shown that this disease was still not unfrequent in the fore-cabins of our merchant navy; but it was not found in the master's cabin, nor amongst the well-fed officers, but amongst the ill-fed seamen. The state of the dietary in our prison population was not only less satisfactory than that of our army and navy, but was very unsatisfactory. He referred to several instances in which it had been found requisite to diminish the allowance of food to convicts, and to others in which it had been increased—changes made, under the influence of mere public opinion, by medical gentlemen on grounds which were illogical, and without making use of the only plan by which the fitness of the change could be proved—that of scientific inquiry into the condition in which the dietary was to be used; and he suggested that a government officer should be appointed to make the requisite scientific inquiries

With regard to dietary in hospitals, an approach to uniformity was possible, but at the present there was a great difference. There was the best reason to believe that the dietary of our private schools and colleges and charitable institutions for the maintenance and education of the young had greatly improved; but it was a subject which should demand public attention. There were multitudes of cheap schools in the country in which the sum paid with the pupils was manifestly inadequate to remunerate the proprietors of the schools. A consideration of the dietary of the general community must have regard to two classes at least—viz., the well-fed middle and higher classes, and the moderately-fed or ill-fed labouring classes; but time would not permit him to refer to the former, further than to offer a few observations on Bantingism. He was not concerned in the medical question as to whether it was desirable to reduce the bulk of a given individual—a circumstance which must always be left to the medical man in charge of the case; but he thought it would be an evil to this nation, both bodily and mentally, if the system of reduction were to become at all general, and that, on the contrary, regarding the whole population, we needed to add to rather than take from the weight of the body. Even in the well-fed classes he had seen very serious diminution of both bodily and mental vigour follow the working out of the plan. There was no necessity for the absolute excision of fat and sugar, and the extreme reduction in the quantity of bread, any more than for the great increase in the quantity of meat. The bulk of the body might be reduced simply by lessening the amount of the kinds of food usually taken; and, as the reduction was more slowly effected, it was a process attended with less danger to the health. Turning to the question as affecting the labouring classes, he observed that an inquiry of a character unique, at least, in extent had just been completed by him for the Government which would afford a clearer insight than had hitherto been obtained into the dietary of our labouring population. It had been made at the houses of the agricultural labourers in every county in England, in Wales, the west and north of Ireland, and the west and south of Scotland, at the houses of certain town populations, silk and cotton weavers, &c., with all the care and minuteness which science could suggest, the details of which might be found in the sixth report of the medical officer of the Privy Council. The coarse kinds of bread which were in ordinary use by our forefathers, even to the early part of the present century, were now very rarely eaten. Barley-bread was still eaten in the houses of labourers in South Wales, and in the farm-houses of North and South Wales and Anglesea; also in Northumberland and Cornwall and Devon, and in the southern parts of Scotland; but, except in certain poor districts in South Wales, it was not now used as the principal member of the class of breadstuff. Rye bread was nowhere eaten alone. Oatmeal was used by 20 per cent. of the farm-labourers in England. Indian corn was used exclusively in the south of Ireland. Peameal was never eaten alone as a bread; but, in the north of Scotland, it was sometimes added to oatmeal for that purpose. Rice was used by about 58 per cent. of the population, but never in the place of bread as a breadstuff. The average weekly dietary of farm-labourers was—for each adult and child, 13¼ lb. of breadstuff, 6½ oz. of sugar, 5 oz. of fat, 14 oz. of meat, 52 oz. of milk, 5 oz. of cheese, and ½ oz. of tea; whilst indoor labourers obtained 9¼ lb. of breadstuff, 8 oz. of sugar, 5 oz. of fat, 13½ oz. of meat, 18 oz. of milk, and ¾ oz. of tea for each adult weekly. In reference to public institutions, he was of opinion that there should be a government officer of the highest repute upon dietary questions to whom such questions should be referred by the Government, and that, in the dietaries of the poor, the wives and children are ill-fed, much more so than the husbands; that a large part of the infant mortality and the deaths at puberty from consumption is due to a deficient supply of milk and of other good food, and the almost exclusive use of slops. He also insisted that a man's first duty was to provide sufficient nourishment for his family, even if it were only dry bread, and that, until this had been effected, nothing should be spent merely to please the taste; and, in order to turn the labourer's overtime to profitable account, it was very desirable that he should have the opportunity of growing plenty of potatoes. Dr. Smith concluded by reference to the present state of the question considered as a science, and pointed out what science had done and what were still the most important defects.

Section E.—Geography and Ethnology.

President—Sir Roderick I. Murchison, K.C.B., G.C.St.S., D.C.L., F.R.S., Director-General of the Geological Survey of the United Kingdom.

Vice-Presidents—John Lubbock, F.R.S., Pres. Eth. Soc.; Major-Gen. Sir Henry Rawlinson, K.C.B., Vice-Pres., R.G.S.; John Crawfurd, F.R.S.; Col. Sir Henry James, R.E., Superintendent Ordnance Survey; Dr. Livingstone, F.R.G.S.; Major-Gen. Sir Andrew Scott Waugh, K.C.B., F.R.S., F.R.G.S.

Secretaries—H. W. Bates, Asst. Sec., R.G.S.; Clements R. Markham, F.R.G.S.; Captain R. M. Murchison, F.R.G.S.; Thomas Wright, M.A.

Committee—Col. Sir James E. Alexander, K.L.S., F.R.G.S.; J. Arrowsmith, F.R.G.S.; Admiral Sir Edward Belcher, C.B., F.R.G.S.; C. H. Bracebridge, F.R.G.S.; C. Carter Blake, F.G.S.; H. G. Bohn; Sir John Bowring, LL.D.; Commander Brine, R.N., F.R.G.S.; Capt. R. F. Burton, F.R.G.S.; Dr. Cheadle; Earl of Cork; Dr. J. Davy, F.R.S.; Dr. Daubeny, F.R.S., F.R.G.S.; Dr. Duka, Mem. Acad. Sciences of Pesth; Charles M. Doughty; Earl of Enniskillen; A. G. Findlay, F.R.G.S.; Capt. Douglas Galton, R.E., F.R.S., F.R.G.S.; F. Galton, F.R.S., F.R.G.S.; Dr. G. D. Gibb, F.G.S.; John Edward Gray, F.R.S.; Dean of Hereford; Dr. J. D. Hooker, F.R.S.; C. E. Davis, F.S.A.; Rev. H. M. Scarth, M.A.; Fred. Hindmarsh, F.R.G.S.; M. de Khanikof; Captain Maury, Confederate States Navy; Admiral Sir A. Milne, K.C.B.; Viscount Milton, F.R.G.S.; Kenneth R. Murchison, F.R.G.S.; Dr. Moritz of Tiflis; Bishop of Natal; Patrick O'Callaghan, B.A.; Colonel Pinney, M.P.; Capt. Bedford Pim, R.N., F.R.G.S.; Sir John Richardson, C.B., M.D., F.R.S., F.R.G.S.; J. Reddie; Arthur S. E. Russell, M.P., F.R.G.S.; Sir Robt. H. Schomburgk, F.R.G.S.; Col. Charles L. Showers, F.R.G.S.; Capt. J. H. Speke, F.R.G.S.; Capt. Thos. A. B. Spratt, R.N., C.B., F.R.G.S.; Richard Spruce; Col. W. H. Sykes, M.P., F.R.S., F.R.G.S.; MacDouall Stuart of Australia, Med., R.G.S.; Dr. Thos. Thomson, M.D., F.R.G.S.; Dr. Thurnam; J. A. Tinné, F.R.G.S.; Rev. H. B. Tristram; Chas. White, J.P., F.R.G.S.; Mr. Vámbéry, Member of the Academy of Hungary; A. R. Wallace, F.R.G.S.; J. King Watts, F.R.G.S.; Col. Yeroleieff, of the Imperial School of Mines, St. Petersburg.

Sir R. Murchison's Inaugural Address is too long for insertion in its entirety. He commenced by remarking upon the fact that the Section of Geography and Ethnology had no existence when the Association last met in this part of England. Having already taken a view of the last year's progress of geography in an address to the Royal Geographical Society, some points of general interest, which have marked the advancement of geographical science during the last forty years, formed the subject-matter of the Address. "To begin with one of the great glories of this century, let us call to mind how little was known of the Arctic regions when Parry made his first explorations, and how, after being followed by many a gallant voyager, the culminating Arctic honour devolved upon a single English woman, who devoted her fortune to the search after her noble-minded husband. . . . . To pass to the vast region of our antipodes, or the furthest from our homes, let us remember how small was the portion of Australia known a quarter of a century ago, in comparison with that which our countrymen now occupy. The great interior was then almost a *terra incognita*, the larger part having been pronounced to be a useless desert. Recently, however, it has been successfully traversed by Stuart, M'Kinlay, Burke, Wills, and Landsborough, and is known to contain so much fertile land that sheep are found to thrive well in tracts which were considered to be mere saline wastes. The discovery of a vast abundance of gold has doubtless been one great cause of the rapid strides latterly made in Australia. . . . . Glancing northward, from Australia to our Asiatic possessions, we have before us that great Indian Archipelago the chief characters and details of which were first made known to us by my gifted friend and associate at this meeting, Mr. John Crawfurd. In later years this most interesting archipelago has been visited by Mr. A. R. Wallace, one of those bold adventurers whom it is my special business, and, indeed, my great pride, to extol. Disdaining the search after the precious metals and all the lures of traffic, this excellent naturalist has examined all the natural history productions of those islands, from the mighty Borneo to the small isles bordering the Polynesian Sea and Australia. Just such another disinterested and truth-loving explorer of distant realms is Mr. H. W. Bates, now acting as one of our secretaries, who, having gone out on the same scientific venture with Wallace in a previous voyage to South America, remained, during eleven years, collecting those materials which have enabled him to lay before his countrymen that instructive and pleasing book 'The Naturalist on the Amazons.' As I have thus wandered to South America, let me remind you of the fact that our senior secretary, Mr. Clements Markham, has not only travelled over the mountainous regions of Peru, but has turned those travels to a great national purpose. He has, in fact, with the aid of Mr. Spruce, been the collector of those cinchona plants, or Jesuit's bark, which afford the best quinine, and, transplanting them to suitable sites in India, has laid the ground for saving not only a needless expenditure, but also the lives of many a colonist and soldier. This consideration has brought us to British India, of which an accurate trigonometrical survey has been carried up to the highest summits of the Himalaya Mountains, and over the grand glacial regions which extend from Western Tibet to Nepaul. . . . If we turn for a moment from the advances in geographical research made by our own countrymen, we must admit that, of all foreign countries, Russia has of late years been most eminent in this respect. The Geographical Society of St. Petersburg wields not only the power and influence of the Imperial Government of Russia, but receives also large grants of public money, which have enabled it to carry on simultaneous researches in the steppes near the Caspian and in the Caucasus, and also to describe the grand natural features of Central Asia, the boundaries of the Chinese Empire, and the whole river-system of the mighty Amur, with its numerous affluents. . . . . We hope to welcome here that indefatigable explorer of various distant lands, our medallist, Sir R. Schomburgk, on his arrival from Siam, where he has been British Consul-General for several years, and of which peculiar kingdom he is thoroughly well-qualified to give you a most interesting account."

The progress of African discovery was thus alluded to: "Look at the most recent maps of Africa, and see what enormous lacunæ have to be filled in, what vast portions of it the foot of the white man has never trodden. True it is that large tracts north of the Equator have been described by Germans and French, as well as by English expeditions, particularly that in which Barth was so distinguished. With the exception, however, of Abyssinia and the snowy mountain Kilimandjaro, explored by Von der Decken and the late Richard Thornton, few of these tracts have been laid down on detailed maps. In the central equatorial region, but for the example set by the three gallant officers of our Indian armies, Burton, Speke, and Grant, and encouraged and supported, I rejoice to say, by the Royal Geographical Society, those countries would have remained as unknown as they have been throughout all history, from the days of Ptolemy to our own. But, if thus the chief water-basin of the White Nile has been boldly outlined, how much does there remain to be done in order to test the value of the anticipations of Dr. Beke—still more to complete a general sketch even of the geography of equatorial Africa! Is it not essential that the Victoria Nyanza of Speke, a body of water as large as Scotland, which has only been touched at a few points on its southern, western, and northern shores, should have all its shores and affluents examined? And do not the Mountains of the Moon of the same explorer invite a survey? Have we not yet to find out the source of the great Zaire, or Congo, and trace that river to its mouth? And who has yet reached the sources of the mighty Niger? Again, when we cast an eye down the map southwards, are we not still in ignorance of the drainage and form of a prodigious extent of country between the Tanganyika lake of Burton and Speke and the Zambesi and Shiré of Livingstone? Are we not at this moment most anxious to determine, by positive observation, whether there exists a great series of lakes and rivers proceeding, as Cooley has suggested, from Tanganyika on the north to Lake Nyassa on the south? and has not Livingstone's very last effort been directed to this point? If Central Africa is ever to advance in civilization, and its inhabitants are to be brought into commercial relations with Europe, one of the best chances of our accomplishing it will, in my opinion, consist in rendering the great White Nile a highway of intercourse and traffic. And, if the present ruler of Egypt shall bring about this most desirable end by putting a stop to the lawless slave-trade carrried on beyond his frontiers under the guise of dealing in ivory, and by establishing marts of commerce on the banks of the great river, Africa will owe more to him than to any ruler since the days of the Roman emperors, who, though they tried, never succeeded in opening out the regions around the head waters of the Nile. In touching upon this subject I have to congratulate you on the news which has arrived, that that chivalrous explorer Mr. Samuel Baker is successfully examining the central equatorial regions, from which, I trust, he will bring us the solution of some of the problems already adverted to, and will determine the real source of the waters which supply the Luta N'zige of Speke and Grant. I have also to announce that Baron von der Decken has proceeded on his bold adventure to explore the interior of Africa from the east coast by ascending the Juba, or one of the adjacent rivers, with two river-steamers constructed at his own cost. In making these allusions to African discovery most heartily do I congratulate geographers on the safe return of my excellent and disinterested friend Livingstone."

After referring to the progress of American discovery, Sir R. Murchison passed on to Asia. "In Asia—though Russia has very recently, as I have said, done much in the north, and the English in the far south-east of that quarter of the globe—the very last communication to the Royal Geographical Society, proceeding from the zealous Hungarian M. Vámbéry, who travelled disguised as a dervish, or holy Mohammedan beggar, has brought vividly to our minds a consciousness of the little we know of the vast countries once ruled over by Genghis Khan and Timur? In truth, the passage to the ancient capital, Samarkand, across those regions, has, of late years, become infinitely more difficult than in the days of Marco Polo. Then (1390), and even in 1405, when an embassy from Henry the Third of Spain to the great Emir Timur reached Samarkand, the wide-spread influence of Genghis Khan still subsisted. From that distant day there is no record of any European having visited Samarkand until the year 1841, when the Khan of Bokhara requested the Emperor Nicholas to send scientific men from Russia to search for gold. This imperial expedition, which visited Samarkand as well as Bokhara, was purely scientific, and consisted of two officers of the School of Mines, Buteneff and Bogoslowski; a very able young naturalist, Lehmann, since dead; an interpreter; and that eminent geographer Khanikoff, who, at the meeting of this Association, held at Oxford in 1860, gave us such an interesting account of other parts of Central Asia. On the whole, however, as M. Vámbéry will tell us, those regions are so occupied by savage warring Turcomans and other Tartars that the solitary traveller is more decidedly shut out from them than he is from Arabia, China, Africa, and other countries, in which so many great problems also remain to be solved. No region certainly calls more for the examination of geographers than Asia, the cradle of the human race; and, albeit the Russians, independently of their researches in Bokhara and Samarkand, have made notable explorations from Siberia into Mongolia, and southwards to the borders of China and Japan, Sir Henry Rawlinson will, I hope, explain to you what extensive regions there are which require to be explored and defined between Nineveh and Babylon, the countries of his memorable exploits and the British empire of the East. Then, even at this day, no one has followed the grand river Burhampooter from Hindostan into China, though the project has often been agitated, and is, I trust, now in a fair way of being accomplished by British energy. . . . . .

"In conclusion, I have a just pride in quoting the animating and truthful words which Mr. Gladstone recently addressed to geographers, inasmuch as they cannot be too widely known, and will, I am sure, be warmly applauded by this assembly:—'It is the love of adventure,' said the eloquent statesman—'it is the boldness in facing danger—it is the strong self-reliance—it is the ready presence of mind—it is all that constitutes that powerful individuality which lies at the root of the whole greatness of this country, and which likewise has lain at the root of the greatness and the performances of geographers. The very same causes which have made you distinguished as a geographical society are those which have made England distinguished among the nations of the world."

Section F.—Economic Science and Statistics.

President—William Farr, M.D., D.C.L., F.R.S.

Vice-Presidents—Sir John Bowring, F.R.S.; James Heywood, F.R.S.; the Mayor of Bath; Right Hon. Joseph H. Napier; Col. W. Sykes, M.P., F.R.S.

Secretaries—Frederick Purdy, Edmund Macrory, and E. T. Payne.

Committee—A. Anaas, Samuel Brown, H. G. Bohn, C. H. Bracebridge, J. Bonomi, E. B. Elliott, W. Ewart, M.P., Professor Fawcett, F. P. Fellowes, Major-Gen. Hannyngton, Professor Hennessy, Edwin Hill, Dr. Hodgkin, Rev. Dr. Hume, W. Gore Langton, M.P., Dr. Lee, Professor Levi, Horace Mann, the Bishop of Natal, Dr. Orpen, Rev. W. C. Osborn, the Recorder of Birmingham, the Recorder of Bath, George Senior, R. J. Spiers, Colonel Torrens, Thomas Webster, Robert Wilkinson, James Yates.

The President's speech in this Section was one of the highest interest. It is, however, too long for insertion, and we have not had time to prepare an abstract: possibly we may recur to it.

Section G.—Mechanical Science.

President—J. Hawkshaw, F.R.S.

Vice-Presidents—Sir W. Armstrong, F.R.S.; J. F. Bateman, F.R.S.; Admiral Sir E. Belcher; Capt. Douglas Galton, R.E., F.R.S.; W. Fairbairn, LL.D., F.R.S.; Professor Rankine, LL.D., F.R.S.; J. Scott Russell, F.R.S.; C. Vignoles, F.R.S.; Professor Willis, F.R.S.

Secretaries—P. Le Neve Foster, M.A., and Robert Pitt.

Committee—G. R. Burnell, F.S.A.; W. Carpmael; F. W. Conrad; Geo. Fawcus; R. B. Grantham; J. Oldham; Norman Scott Russell, M.I.N.A.; W. Smith; J. L. Stothert; John Vernon; G. Redford; R. Abernethy; Wm. Froude.

The Inaugural Address in this Section will be given next week.

ART.

THE SPECIAL NATURE OF PORTRAIT-PAINTING.

It is the fashion of modern criticism, or what passes for it, to reproduce an annual attack upon the portraits exhibited in the Royal Academy. They are all lumped together indifferently in a common condemnation—a way of treating the subject which may be described as more ignorant than wise and more convenient than true. We find one critic, at the close of two columns devoted to a notice of the exhibition, dismissing the portraits in the following sentence: "The portraits are more obtrusive than ever; they scowl, and grin, and leer from every corner." We will not now stop to inquire whether a sentence like this would be tolerated as criticism in a French journal, but will rather try to meet some of the more just charges brought against modern portraiture by better informed critics, whose *dicta* are received by a public too careless to question them, and adopted at once as self-evident truths. And here we may at once say that we do not propose to take up the cudgels in favour of modern portraits; we believe that very much of what is written and spoken in their disparagement is well founded; but it may be as well to consider whether what is true of modern portrait-painting is not also true of modern subject-painting, as, if so, much of the special condemnation with which it is the fashion to visit modern portraiture will be proved to be unfair.

It has been asserted by many, and this view has also been adopted by the accomplished critic of the *Times*, that portrait-painting should not be given over to a special class of painters, but that it should rather be the occasional employment of serious subject-painters who have made it their duty to study the art of painting in its widest scope, and not merely a particular branch of it. By painters of this order it is urged that portraits would be painted with greater knowledge and with higher aim. The noblest and most beautiful heads only would be painted, and photography might be left to reproduce the countenances of the mighty common-place world who invade and disturb the serenity of our exhibitions. Admitting, for a moment, that common-place ladies and gentlemen would be content to leave statesmen and soldiers and court beauties in the hands of a few historical painters, and to remain satisfied themselves with the tender mercies of photography, let us see what examples are proposed to our notice in justification of the system which really once obtained, and under which the noblest portraits were unquestionably produced.

The portraits of Raphael, Titian, and Rembrandt, three of the greatest painters the world ever saw, are pointed to as instances which prove the superiority of the ancient practice over the modern one. The portraits of these painters are, indeed, of a different order, and have very little in common with the productions which offend the taste of modern criticism; but, in order to estimate fairly the modern practice by which portrait-painting is relegated to a special class of artists, we must inquire what sort of portraits our modern subject-painters are capable of producing. With the single exception of Mr. Watts, whose portraits are very unequal, we have no hesitation in saying that not a single figure-painter living can produce a portrait in all respects so good as those that have been annually exhibited by the best of our portrait-painters—by Watson Gordon, Grant, or Boxall. The last exhibition, however, afforded particular instances to justify this general assertion. There was a portrait of Lord Panmure by Mr. Philip, who is confessedly one of the most able of our figure-painters. This portrait, which made a certain impression at the first glance by its powerful colour, was utterly deficient in delicacy, and failed to present the more refined characteristics which redeem the head in the original from coarseness. There was also a portrait of Mr. Bond Cabbell, by Mr. O'Neil, the distinguished painter of "Eastward, ho!" which was certainly very deficient in character and without a particle of taste. To these instances we may add the failures of greater men. Landseer is only weak when he attempts portraiture; the instances of "The Return from Hawking" and the various royal portraits he has produced may be taken as evidence of it. Wilkie notably failed as a portrait-painter, and Haydon egregiously. All these men have been surpassed in this branch of art by the professional portrait-painters whose names we have mentioned, not to speak of their greater predecessors in the same line of practice.

We must not be led away by the utterance of high-sounding names from a just appreciation of facts. That Raphael, Titian, and Rembrandt painted portraits that are rightly reckoned among the priceless treasures of Europe is a proof of their transcendent genius; but it gives no countenance to the assertion that portrait-painting is not and should not be a special branch of the art of painting. Painting is the most difficult and varied of all the arts, and can only be compassed by intellect and skill of the highest order; ordinary capacities must be content to achieve excellence in some special branch of it—figure-painting, landscape, or portraiture. The greatest triumphs of the English school have been won in landscape and portraiture, but especially in portraiture. Reynolds, Gainsborough, Opie, Copley, Lawrence, Jackson, Raeburn, and others were emphatically portrait-painters, and they chiefly sustain the character of the English school. We may admit that their living successors are unable to produce portraits of similar excellence to those which we so highly prize as the works of these great artists; but we must also concede that our figure-painters are incapable of producing portraits that can be put in comparison for a moment with such works as "The Duchess of Devonshire," "The Blue Boy," or "Pius VII." Hogarth is the only English figure-painter whose works might, perhaps, be admitted to stand upon a higher level. Philip, with all his picturesque powers, John Lewis, with his exquisite finish and taste, Millais, with his rapid and marvellous insight, Watts, with his poetic feeling—all fail to command that large and common consent which is accorded to a complete manifestation of power, and which has placed and sustained on their thrones the portrait-founders of the English school.

The truth that seems to have been overlooked by critics is, that only the rounded intellect and consummate skill of a Titian can grapple with all the infinite difficulties of painting. A very few names would exhaust the catalogue of those who, in the intervals of more important work, could produce a portrait the like of which no modern hand can approach. Vandyck was a portrait-painter, and, upon the results of this main branch of his practice, his fame rests; apart from it he sinks into an insignificant scholar of Rubens. Velasquez was a portrait-painter, and his greatness likewise rests upon his achievements in this especial walk of art. Reynolds was, of course, a portrait-painter; and, although much has been said of Gainsborough's landscapes, his reputation was made, and is still sustained, by his success as a portrait-painter, his landscapes being, after all, merely portrait-backgrounds, full of harmony and taste. Copley's group of family portraits, including that of the late Lord Lyndhurst when a child, has not been surpassed as a great work of art by the later productions of English subject-painters; and Lawrence, with all the deserved censure that has been heaped upon his memory, has left to the country, in the portraits of Pius VII. and Cardinal Consalvi, two pictures that have not only never been equalled by living portrait-painters, but that will probably be esteemed when the works of highly-distinguished figure-painters of the day are forgotten.

Looking to the works which sustain the reputation of the English school, the majority of which were brought together in the International Exhibition of 1862, we shall find that in the main they were produced by portrait-painters. The one great exception that will occur to every one is Hogarth, a painter of extraordinary originality and versatility, the like of whom does not exist in the school; like a meteor light he passed away, belonging to English art, yet not of it, and leaving little or no impress on it. With this one exception, our best historical and subject-painters have appeared in the later development of the school; but, when surveying the length and breadth of that great exhibition of English pictures, dating from Reynolds to the present time, we are compelled to say that the chief glories of the school were to be noted on the walls occupied by Reynolds and Gainsborough. We fully believe that the modern custom which assigns to a special class of artists the practice of portrait-painting is based upon wisdom as well as convenience. "There are diversities of gifts, but one spirit." Boxall and Philip are both admirable artists; but, if the former would prove a weak subject-painter, the latter lacks the individualizing power which is so essential to the production of a good portrait. Critics are hardly fair upon portrait-painters. A lofty pity was expressed for Mr. Richmond's attempt to represent Comus; but it was hardly more deserving of pity than the occasional efforts of clever figure-painters to produce a life-sized portrait.

ART NOTES.

ACCORDING to an announcement by the Consul-General for Portugal at Vienna, artists of all nations are requested to send in models for a statue to be erected to Don Pedro IV. at Lisbon, up to the end of October. The first prize consists of 11,550 francs, the second of 5500 francs; and there are three further prizes of 2755 francs each.

THE grand edifice of the Pesth Academy, now nearly completed, is to receive the statues of Leibnitz, Milton, Descartes, Galileo, and Raphael, executed by Siemering, Afinger, and other eminent German sculptors.

A STATUE is to be erected to Haydn at Vienna, and the municipality has offered a prize for the best model, to be executed by a Viennese artist, sent in by the 15th November.

BENDEMANN'S "Death of Abel," at the "Jury-Building" in Naumburg, is to be executed by his friend and disciple Bertling.

CARL RAHL has finished his frescoes at the "Waffengebäude" at Vienna.

MUSIC.

THE PROMENADE CONCERTS.

THERE will soon be no musical season at all in London. Until very few years ago the "season" was a sharply-defined period of some four or five months, during which our hospitable shores were invaded by hosts of Continental celebrities, and outside of which not a note of good music could be heard in the metropolis. The short gap that still divided the winter from the summer series of musical entertainments has latterly been bridged over by Mr. Mellon; and now young M. Jullien has started a set of concerts to run concurrently with those given at Covent Garden. The enterprising son of the much-ridiculed *chef d'orchestre*, to whom the credit of popularizing music in England is largely due, has again established himself in Her Majesty's Theatre; and rumour adds that, as the house is let for operatic performances, Italian and English, he is compelled either to give his Promenade Concerts at the present unpropitious time or else to abandon them altogether. Inconsiderable as is the artistic value of such entertainments, they deserve some record, if only because they show how much the liking—we speak not of the taste—for music has increased of late years. The mere fact that the two largest theatres in London, both being opened for concerts of a similar description, are nightly filled at the dead season of the year is of itself noteworthy. M. Jullien should be warned, however, that he must not allow admiration of his father to carry him too for. He must progress with the spirit of the age, or he will be left stranded, high and dry, while the tide of popular favour is washing more sweeping barks along that are steered with greater enterprise and skill. The British Navy and the Swiss Quadrilles, which in years gone by used to raise enthusiastic applause, produced, when revived on Monday last, the opening night, scarcely any applause. Beethoven's first symphony—that in C major—on the other hand, was listened to with the deepest interest; and this significant circumstance should teach M. Jullien a useful lesson. The orchestra, although not by any means so good as Mr. Mellon's, is perfectly efficient; and the eighty members acquitted themselves very well of their task in Beethoven's symphony, no less than in the operatic selection from "La Traviata," and in the dance-music by Gungl, which agreeably diversified the selection from the elder Jullien's *répertoire*. M. Lotto, the violinist, is the chief, if not the only real attraction at these concerts; but the talents of Mdlle. Mariot de Beauvoisin, a young pianiste who delights in brilliant fantasias, and of Madame Liebhardt, the Viennese vocalist, are also employed. As our readers will have surmised, there has been nothing as yet in the long programmes to demand special notice. When any novelty is produced by M. Jullien we shall return to his concerts.

Much more important and interesting than anything in M. Jullien's concerts are the programmes which Mr. Mellon frames for the nightly entertainment of his patrons, who, by-the-bye, continue to increase in numbers. A "Gounod Night" has been thrice repeated this week, and each time the name of the composer of "Faust" has proved a potent attraction. The selection from his works comprised much that rewarded attention; but it might, without much difficulty, have been made still more interesting and instructive. The overture to "Le Médecin malgré lui," with which the selection opened, has already been heard by English amateurs at one of the recent concerts of the Musical Society. In the overture, as in all the music with which M. Gounod has ventured to illustrate and embellish one of the raciest of Molière's comedies, the composer's inventive faculty has been greatly hampered by the exigencies of his subject. In endeavouring to preserve the *couleur locale* of the scene, his imagination has been cramped by the antiquated forms which he has thought it needful to employ. Rococo as are both the themes and the treatment in the overture to "Le Médecin malgré lui," it is, nevertheless, *piquant* and effective. A "Danse des Bacchantes," from the pastoral of "Philémon et Baucis," is so strikingly original in character, and is instrumented with such singular felicity, that we cannot account for the complete failure of the work, except on the hypothesis that the rest of the opera is of very different calibre. The *fiasco* made by "La Reine de Saba" has been attributed to the subject, which was considered too profane even for the Parisians. The ballet music, in which M. Gounod, by-the-bye, is always highly successful, is exceedingly charming. Of the five movements of which the ballet consists, the *pas seul* and the so-called *Rêverie Arabe* are perhaps the most engaging; but the exquisite grace of the orchestration, which lends a captivating piquancy to themes that in themselves are trite, and which is remarkable throughout, cannot possibly be too highly praised. Three songs without words, played by Mr. J. Hill, are so weak and commonplace as to favour the assumption that M. Gounod's strength deserts him when he writes for the pianoforte. The boldly original chant entitled "Nazareth," sung by Mr. Lewis Thomas; the lovely and familiar "Berceuse," charmingly rendered by Madame Parepa; and the ordinary orchestral *fantasia* on "Faust," made up the "Gounod Selection." Should it be again repeated, we would counsel Mr. Mellon to include one of his symphonies, which, whatever their merits, cannot fail to be interesting.

MUSICAL AND DRAMATIC NOTES.

THE final concerts of the season at Spa offer unusual attractions; among the artists taking part in them are Vieuxtemps, Léonard, Godefroid, Wienawski, and Mesdames Graever and Léonard.

M. RENARD, who has filled for some time the post of principal tenor at the Operas of Marseilles and Lyons, has been appointed director of the theatre at Grenoble.

DURING the past week "Robert le Diable," "Guillaume Tell," "Le Comte Ory," and "Lucie de Lammermoor," with the ballet of "Néméa," have been performed at the Opera at Paris, and "Don Pasquale," "Faust," "Les Noces de Figaro," and "La Reine Topaze" at the Théâtre Lyrique.

M. PERRIN, director-in-chief of the Opera, has written to the *Figaro Programme*, denying the assertion made through its columns that Meyerbeer's "L'Africaine" had been put into rehearsal. It may prevent confusion in the minds of some of our readers to be told that, when *the* Opera is spoken of in Paris, the French, as distinguished from the Italian, Opera is signified.

"L'ALCADE," a comic opera by M. Uzeppi, produced as a "lever de rideau" at the Théâtre Lyrique, is spoken of unfavourably.

M. GILLAND has made his first appearance at the Théâtre Lyrique. He is a young tenor of considerable promise; his voice is rich and musical, and his delivery fluent.

THE forthcoming novelties at the Italian Opera at Paris are "La Forza del Destino" of Verdi, the "Leonora" of Mercadante, the "Don Bucefalo" of Cagnoni, the "Crispino e la Comare" of Ricci, and the "Duchessa di San Giuliano" of Grafligna.

M. JULIEN LANGENBACH, with a German orchestra, is giving a series of concerts at Brussels at the Théâtre du Boulevard. His concerts are well known in Germany as the "Johannisberger Kapelle."

MADAME CHARRY has achieved a success at the Théâtre de la Monnaie in "La Juive" and in "Robert le Diable," although her execution is much too florid. The beautiful air in the latter, "Quand je quittais ma Normandie," was utterly lost in the multitude of *roulades* beneath which it was overwhelmed. The performance of "Lucie di Lammermoor" was a failure.

MDLLE. FANNY GENAT has made a successful *début* at the Odéon in the new comedy "Une Défaite avant la Victoire."

A NEW comedy by Roderich Benedix, called "Doktor Treuwald," is shortly to be produced at Vienna.

THE comedy by Dumas, "Mdlle. de Belle Isle," about to be produced at the Haymarket, is being played at the Théâtre Français at Baden, by a troupe numbering, among others, Madame Madeline Brohan and MM. Regnier and Bressant.

GEORGE SAND has issued a volume of plays, which have been written and performed at Nohant for the particular gratification of herself and friends. The literary merit of these is said to be the higher, as the author has given full scope to her imagination, and has been unfettered by the exigencies of the regular stage, for which her dramas are little fitted. The title of the volume is "Théâtre de Nohant," and the publishers are Michel Lévy Frères.

A NEW drama by Hermann Schmidt, called "Ludwig im Bart," hitherto not passed by the Bavarian censor, because of the enmity between father and son occurring in it—a circumstance which might offend the royal houses both of Bavaria and Prussia—has now been set free by the new king himself, and is shortly to be produced at the Court-theatre. Of other novelties preparing at Munich may be mentioned R. Wagner's "Fliegender Holländer."

A NEW one-act comedietta by M. Blerzy has been produced for the first time at the French theatre at Baden. It is entitled "La Récompense Honnête," and, though slight in construction, is full of life and gaiety. The Queen of Prussia, the Grand-Duchess of Hesse, and other royal guests were witnesses of the performance, which was eminently successful.

"LES FLIBUSTIERS DE LA SONARE" is the title of another sensation melodrama, which has been produced at the Théâtre de la Porte Saint-Martin. It is in ten tableaux, and is by MM. Amédée Rolland and Gustave Aymard. It has all the faults of its class, but is splendidly mounted and set upon the stage. After its vain attempt at amendment, this theatre has once more and finally relapsed into its old habits.

THE forthcoming "Theater-Album," by Seyfried, the former editor of the *Wanderer*, is to contain the most memorable theatrical events of Vienna during the last fifty years.

THE Théâtre Royal des Galeries Saint-Hubert at Brussels has reopened with the performance of the spectacular drama "Rocambole," which has been recently produced with success at the Ambigu.

THE Théâtre du Parc at Brussels has opened with the performance of the "Hortense de Cerny" of MM. Bayard and De Beauplan, and the "Ah! que l'Amour est Agréable" of MM. Varin and Delacour. The *Indépendance*, in its criticism, says that the entire performances are harmonious; but it is a harmony of vulgarity and commonplace.

THE principal actors of the Ammergauer "Passionsspiele" of a few years ago are now "starring it" in the south of Germany. These miracle-plays are literary curiosities; but surely not acting dramas in this nineteenth century.

THE performances during the past week at the Théâtre Royal de la Monnaie at Brussels have consisted of "Zampa," "La Juive," and "Les Dragons de Villars." The ballet "La Fête des Voiles" has concluded each performance, and has introduced to the Belgium public Mdlle. Amina Boschetti, a dancer of much grace, and a comedian of considerable promise.

THIS evening the first of the Shakespearian performances is held at Drury Lane. It consists of the first part of "Henry the Fourth," in which Mr. Phelps plays *Falstaff* and Mr. Creswick *Hotspur*. The whole cast is unprecedentedly strong.

MR. B. WEBSTER takes his benefit this (Saturday) evening at the Adelphi Theatre. The present is the closing night of the season.

THE Olympic Theatre, after undergoing a thorough cleaning and important improvements, will shortly re-open, with Mr. Horace Wigan as lessee and sole manager.

MR. STOYLE, a gentleman who has acquired some reputation in the provinces, and Miss Milly Palmer, a favourite actress in Liverpool, will shortly appear at the Strand.

OF our London actors, Miss Bateman is performing at Liverpool, whence she will proceed on a lengthened tour, visiting Birmingham, Dublin, Manchester, and Glasgow. Mr. Henry Neville is also in Liverpool, playing in "The Ticket-of-Leave Man." Mr. Sothern is performing *David Garrick*, with much success, at Edinburgh.

MUSIC FOR NEXT WEEK.

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Black horn, rimmed shoulders	17 0	14 0	4 0
Ditto, very strong riveted handles	12 0	9 0	3 0

The largest stock in existence of plated dessert knives and forks in cases and otherwise, and of the new plated fish carvers.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment, to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited stock of Sterling Silver and Electro Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed-room Cabinet Furniture, &c., with Lists of Prices and Plans of the Twenty Large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4 Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London.

PIANOFORTES EXTRAORDINARY, at MOORE and MOORE'S, 104, Bishopsgate Street Within.—These pianos are of rare excellence, with the best improvements recently applied, which effect a grand, pure, and delightful equality of tone, that stands unrivalled. Prices from 18 guineas. First-class pianos for hire, on easy terms of purchase. Jury award, International Exhibition: Honourable Mention "for good and cheap pianos." Carriage free.

RAILWAY GREASE, COLLIERY ANTI-FRICTION and MILL GREASES, and LUBRICATING OILS.

TURPENZINE, a perfect Substitute for Turpentine, at less than one-third the Price.

PATENT CAZELINE Burning Oil, adapted to all Paraffin and Petroleum Lamps.

Terms and Particulars on Application,

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EDUCATIONAL TELESCOPES.

T. COOKE & SONS,

OPTICIANS, &c.,

31, SOUTHAMPTON STREET, STRAND,

LONDON,

MANUFACTORY—

BUCKINGHAM WORKS,

YORK,

Beg to announce that, in addition to their high-class ASTRONOMICAL TELESCOPES of all Sizes, they are now manufacturing

EDUCATIONAL TELESCOPES,

With object-glasses, varying in aperture from 2½ to 4 inches

The EDUCATIONAL TELESCOPES are supplied with the best object-glasses; brass tubes, with rack adjustment to focus, finder, dew-cap, and two astronomical eye-pieces, with sun-shades; they are mounted on tall tripod stands, with horizontal and vertical motions, and steadying rods. All packed in neat cases.

In consequence of increased facilities in their manufacture, T. COOKE and SONS are enabled to offer their EDUCATIONAL TELESCOPES at prices ranging from £10 to £36.

They also beg to solicit attention to their

PORTABLE EQUATORIAL MOUNTINGS.

With Hour Circle, reading to twenty seconds of time, and Declination Circle, to one minute of arc; tangent-screw motion, and all necessary means of adjustment in position, on stout tripod stands. From £5 to £12. 10s.

PRICE LISTS may be had on application.

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31, Southampton Street, Strand, London.

MANUFACTORY—

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BROWNING'S FIVE GUINEA SPECTROSCOPE.

THE MANY APPLICATIONS THE "SPECTROSCOPE" has recently received, have rendered it highly desirable that the Instrument should be in the hands of every Chemist and scientific experimentalist.

MR. BROWNING has had great experience in the construction of "Spectroscopes," and of other apparatus for spectrum researches. He may instance the Kew Observatory Spectroscope, furnished with a battery of nine glass prisms, and another of eleven fluid prisms, which he made for J. P. GASSIOT, Esq., F.R.S., and also the Spectrum apparatus he has constructed for WM. HUGGINS, Esq., F.R.A.S., for his researches on stellar and other spectra.

MR. BROWNING'S great experience in this special branch of optics has enabled him to produce the efficient instrument now described, at the very economical price stated.

THE INSTRUMENT has a prism of extremely dense glass of superior workmanship. The circle is divided, and reads with a vernier, thus dispensing with the inconvenience of an illuminated scale; this arrangement possesses the very great advantage of giving angular measures in place of a perfectly arbitrary scale.

THE SLIT is also furnished with a reflecting prism, by means of which two spectra can be shown in the field of view at the same time.

THE INSTRUMENT is expressly adapted to the prismatic analysis of organic bodies, according to the method recommended by Professor STOKES, in his lecture at the Chemical Society, printed in the *Chemical News*.

JOHN BROWNING,

Wholesale Manufacturer of Mathematical, Philosophical, Optical, Meteorological, Nautical, and Surveying Instruments,

111, MINORIES, AND 6, VINE STREET, CITY, E.C.

PRIZE MEDAL, 1862.

ESTABLISHED 100 YEARS.

SMITH, BECK, AND BECK'S NEW MERCURIAL MAXIMUM THERMOMETER.—This instrument cannot be put out of order, and registers the heat with the greatest accuracy. A description sent free by post, or to be had on application at 31, Cornhill, E.C.

FOR EVERY HOME AN EXCELSIOR SEWING AND EMBROIDERING MACHINE is the simplest, cheapest, and best; doing every variety of domestic and fancy work in a superior manner. Price from £6. 6s.

WHIGHT and MANN, 143, Holborn Bars, London, E.C.

Manufactory—Gipping Works, Ipswich.

NEWTON WILSON & CO.'S PATENT PRIZE SEWING MACHINES are lighter and easier to operate, simpler to learn, quieter in action, and less liable to derangement, than any others. They run, tuck, hem, fell, gather, cord, quilt, braid, and embroider the finest cambric or the heaviest material. They are the only machines that will do hem stitching, and make their own braid and stitch it on at the same moment. In use by Her Majesty the Queen, the Empress of the French, and most of the Nobility and Clergy

GREAT CENTRAL DEPOT, 144, HIGH HOLBORN, LONDON.

HYDROPATHIC ESTABLISHMENT, GRAEFENBERG VILLA, NEW BARNET, HERTS, close to the Railway Station, under the direction of Mr. MERCALFE (Proprietor of the Hydropathic Establishment, Priessnitz House, Paddington Green, W.)

New Barnet, admitted by the Medical Profession to be one of the most salubrious spots in England, adjoins Hadley Wood, and is within half-an-hour's ride by the Great Northern Railway of the King's Cross Station, from whence trains start every hour.

For Terms and Prospectuses apply to Mrs. WESTON, Graefenberg Villa, as above.

TOURISTS derive additional pleasure in their rambles when acquainted with MINERALS, ROCKS, and FOSSILS.—Mr. TENNANT, Geologist, 149, Strand, London, gives Practical Instruction to Ladies and Gentlemen, and from his extensive Collections, comprising many thousand specimens, persons are enabled in a dozen or twenty private lessons to identify the ordinary components of Rocks, and most of the Minerals and Metals used in the Arts. Mr. Tennant can also supply Elementary Geological Collections at 2, 5, 10, 20, to 100 Guineas each.

GUN COTTON MANUFACTORY:—GREAT EASTERN CHEMICAL WORKS, STOWMARKET, SUFFOLK:—MESSRS. THOMAS, PRENTICE, & CO.

THIS MANUFACTORY has been established for the purpose of preparing Gun Cotton, according to the Austrian process, and was opened on the 26th of January last, under the inspection of Baron LENK. Messrs. THOMAS, PRENTICE, & Co. are now able to supply Gun Cotton in its most improved form, either for the purposes of Engineering and Mining, or for Military and Submarine explosion, and for the service of Artillery as a substitute for gunpowder.

The advantages of Baron LENK'S Gun Cotton are the following:—

FOR PURPOSES OF ARTILLERY.

1. The same initial velocity of the projectile can be obtained by a charge of Gun Cotton one-fourth of the weight of gunpowder.
2. No smoke from the explosion.
3. Does not foul the gun.
4. Does not heat the gun to the injurious degree of gunpowder.
5. The same velocity to the projectile with much smaller recoil of the gun.
6. Will produce the same initial velocity of projectile with a shorter length of barrel.
7. In projectiles of the nature of explosive shells, Gun Cotton has the advantage of breaking the shell more equally into much more numerous pieces than gunpowder.
8. When used in shells instead of gunpowder, one-third of the weight of the latter produces double the explosive force.

FOR CIVIL ENGINEERING AND MINING.

9. A charge of Gun Cotton of given *size* exerts double the explosive force of gunpowder.
10. It may be so used, as, in its explosion, to reduce the rock to much smaller pieces than gunpowder, and so facilitate its removal.
11. Producing no smoke, the work can proceed much more rapidly, and with less injury to health.
12. In working coal mines, bringing down much larger quantities with a given charge, and absence of smoke, enable a much greater quantity of work to be done in a given time at a given cost.
13. The weight of Gun Cotton required to produce a given effect in mining is only one-sixth part of the weight of gunpowder.
14. In blasting rock under water the wider range and greater force of a given charge cheapens considerably the cost of submarine work.
15. The peculiar local action of Gun Cotton enables the engineer to destroy and remove submarine stones and rocks without the preliminary delay and expense of boring chambers for the charge.

FOR MILITARY ENGINEERING.

16. The weight of Gun Cotton is only one-sixth that of gunpowder.
17. Its peculiar localized action enables the engineer to destroy bridges and pallisades, and to remove every kind of obstacle with great facility.
18. For submarine explosion, either in attack or defence, it has the advantage of a much wider range of destructive power than gunpowder.
19. For the same purpose. From its lightness it has the advantage of keeping afloat the water-tight case in which it is contained, while gunpowder sinks it to the bottom.

FOR NAVAL WARFARE.

20. Where guns are close together, as in the batteries of ships and case-mated forts, the absence of smoke removes the great evil, of the firing of one gun impeding the aim of the next, and thus Gun Cotton facilitates rapid firing.
21. Between decks, also, the absence of smoke allows continuous rapid firing to be maintained. The absence of fouling and of heating is equally advantageous for naval as for military artillery.

GENERAL ADVANTAGES.

22. Time, damp, and exposure do not alter the qualities of the patent Gun Cotton.
23. It can be transported through fire without danger, simply by being wetted, and when dried in the open air it becomes as good as before.
24. It is much safer than gunpowder, owing to its being manufactured in the shape of rope or yarn.
25. The patent Gun Cotton has the peculiarity of being entirely free from the danger of spontaneous combustion, and is constant and unalterable in its nature.

Messrs. THOMAS, PRENTICE, & Co. are now in a position to contract with the owners of mines, engineers, contractors, and Governments, for Gun Cotton prepared in the various forms required for their use. Mining charges will be supplied in the rope form according to the diameter of bore required, and Gun Cotton match-line will be supplied with it. Instructions as to the method of using it in mines will also be supplied.

They are also prepared to manufacture the Gun Cotton, and deliver it in the form of gun cartridges, adapted to every description of ammunition.

Artillerists who prefer to manufacture their own cartridges, may make special arrangements with the patentee through Messrs. PRENTICE & Co.

Stowmarket, March 10, 1864.

SOFT, DELICATE, and WHITE SKINS, with a DELIGHTFUL and LASTING FRAGRANCE, by using FIELD'S CELEBRATED UNITED SERVICE SOAP TABLETS, 4d. and 6d. each.

Sold by all Chandlers and Grocers throughout the Kingdom; but the Public should ask for Field's, and see that the names of J. C. and J. FIELD are on each packet, box, and tablet.

Wholesale and for exportation, at the Works,

UPPER MARSH, LAMBETH, S.,

Where also may be obtained their Prize Medal Paraffine Candles.

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J. C. and J. FIELD,

Who beg to caution the Public against spurious imitations. Their Label is on the Packets and Boxes.

Sold by all Dealers throughout the Kingdom. Wholesale and for Exportation at the Works, UPPER MARSH, LAMBETH, LONDON, S., where also may be obtained their

CELEBRATED UNITED SERVICE SOAP TABLETS, and the NEW CANDLE, Self-fitting, and no Paper or Scraping.

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78, BOROUGH ROAD, S.E.
Office Hours, 11 till 5.

Tutors, Governesses, Companions, Lady Housekeepers, &c., may speedily meet with Engagements through the medium of these Offices. No charge to Principals requiring the above. Advowsons, Schools, and Practices immediately transferred on the most Moderate Terms. Schools recommended and pupils introduced. All communications strictly confidential. Mr. E. HARRIS, Superintendent.

EDUCATION. TUTORS. GOVERNESSES.

HEADS of FAMILIES, or PRINCIPALS of SCHOOLS, requiring GOVERNESSES or TUTORS, have competent candidates introduced to them, free of charge, by stating their requirements to Mr. MAIR (late Mair and Son, established 1833), Educational Agent, 217, Piccadilly (Corner of Regent Circus), removed from Bedford Street, Strand, London, W.

Mr. MAIR, editor of *The Scholastic Directory* and *The Monthly Register*, and author of "Scholastic Experience," "History of Westminster School," &c., recommends Schools to Parents and Guardians, gratis. He can always introduce pupils into first-class establishments on very reduced terms. School property transferred. Pupils exchanged, &c.

PRIVATE TUTOR.—A CLERGYMAN, M.A. of Cambridge, residing near Richmond, experienced in Tuition, and possessing highly satisfactory Testimonials, is desirous of meeting with a Pupil. Address—BETA, HISCOKES and Son's Library, Richmond, Surrey.

PRIVATE TUITION.—A GENTLEMAN, experienced in Tuition, Master at a Public School, has some hours every morning disengaged. He teaches CLASSICS, FRENCH, GERMAN, COMPOSITION, &c. Distance no object. For Terms apply to "LECTURER," care of Messrs. Hatton and Son, 90, Chancery Lane, W.C.

DR. BEHR, FORMERLY HEAD MASTER OF HYDE ABBEY SCHOOL, WINCHESTER, is now conducting an Establishment on similar principles at THE GRANGE, EWELL, near EPSOM, SURREY. He is assisted by resident Graduates from the Universities of Oxford, Cambridge, and Paris, and prepares Pupils for the PUBLIC SCHOOLS, NAVAL AND MILITARY COLLEGES, and COMPETITIVE EXAMINATIONS. For Prospectuses and Reference, apply as above.

TO LADIES, COLLEGES and SCHOOLS.—A married Lecturer and Professor of Modern Languages would be glad to extend his connection. Terms moderate. Distance no object. For Particulars apply to "PROFESSOR," University Tutorial Association, 9, Pall Mall East.

EDUCATION in GERMANY, Heidelberg.—Dr. GASPEY'S Prospectus may be had of Mr. CULVERWELL, 21, Norfolk Street, Strand, W.C.

PARIS: YOUNG LADIES' EDUCATION. Established at Paris-Passy, by Madame DUCHESNE, and directed by Mesdames VERTEUIL and LEMAIRE, 56, Rue de la Tour. THIS INSTITUTION, situated in a most healthful neighbourhood, remote from the business quarter, presents all the advantages of salubrity and comfort, which render the boarding schools *extra muros* so much in favour. It has a large shrubbery thickly planted with trees, an extensive garden, and commodious dormitories, and is in close proximity with the BOIS DE BOULOGNE. The course of study is most complete, and includes the living languages and the elegant arts. A physician is specially attached to the Institute. The terms vary with the age of the Pupils.

A detailed Prospectus of the Establishment, and the Studies pursued in it, will be sent, on application, to any address. References can be given to some of the best English families, whose children have been educated there.

ART EXHIBITION for the RELIEF of the DISTRESS in the COTTON DISTRICTS.

BALANCE SHEET.

Dr.

		£. s. d.
1863.	Received for Pictures, Drawings, Publications, *Objets d'Art*, &c.	2636 0 7
,,	Ditto Catalogues	57 19 6
,,	Ditto Admissions at the Door	294 2 6
		£3008 2 7

Cr.

				£. s. d.
	Paid for Framing, Hanging, and Packing			83 14 10
	Ditto Wages, Salaries, Catalogues, Printing, and Advertising			183 13 0
	Ditto Rent, Gas, Petty Cash, and Small Disbursements			182 19 7
1863.	Ditto Instalments:—			
Jan 22.	Central Relief Fund	£500 0 0		
Feb. 5.	Ditto ditto	500 0 0		
April 1.	Ditto ditto	500 0 0		
1864.				
Aug. 11.	Ditto ditto	50 0 0		
1863.				
Feb. 13.	The Warehousemen and Clerks' Association, Manchester	100 0 0		
May 11.	Relief Emigration Fund	900 0 0		
			Total	2550 0 0
	Balance in hand to defray Printing and Posting of Balance Sheet			7 15 2
				£3008 2 7

(Signed) JAMES HEYWOOD, ALFRED BONHAM CARTER, } Treasurers.

Examined with the Vouchers and found correct,
EDWD. ROMILLY.

There has been a delay in the production of this Balance Sheet, which has arisen from the fact that the Accounts were kept open until recently in order to dispose of the surplus copies of the Lancashire Poems and some *Objets d'Art*.

DEANE'S (the Monument), London Bridge.
ESTABLISHED A.D. 1700.

DEANE'S TABLE CUTLERY, celebrated for more than 150 years, remains unrivalled for quality and cheapness. The Stock is most extensive and complete, affording a choice suited to the taste and means of every purchaser. The following are some of the prices for Ivory-handled Knives, each blade being of the best steel, bearing our name, and warranted:—

	s.d.	s.d.	s.d.	s.d.	s.d.	s.	s.	s.
Table Knives, per doz.	12 6	14 0	16 0	19 0	23 0	25	29	33
Dessert ditto ,,	11 6	12 0	12 0	15 0	18 0	20	23	28
Carvers, Joint, per pair	5 0	5 0	5 6	6 6	7 6	8	9	11

ELECTRO-PLATED SPOONS and FORKS.—The best manufacture, well-finished, strongly plated. Every article stamped with our mark, and guaranteed.

	FIDDLE.		REEDED.		KING'S.		LILY.
	2nd.	Best.	2nd.	Best.	2nd.	Best.	Best.
Per dozen.	s. d.	s.	s.	s.	s.	s.	s.
Table Spoons	33 0	40	44	58	54	66	58
Table Forks	31 0	38	44	56	54	64	56
Dessert Forks	23 0	29	32	40	37	46	40
Dessert Spoons	24 0	30	32	42	37	48	42
Tea Spoons	14 6	18	22	26	26	32	26
Gravy Spoons each	6 6	7/6	9	11	11	13	10

DISH COVERS & HOT-WATER DISHES.—DEANE & Co. invite particular attention to their varied and excellent assortment of these goods, to which they are continually adding all modern approved patterns in Electro-plate, Britannia Metal, and Tin.

	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.
Britannia Metal, set of 5	3 0	3 6	3 10	4 6	5 10	5 15
Britannia Metal, set of 6	4 5	4 13	5 0	5 8	7 7	7 17
Block Tin, set of 6	0 18	1 10	2 0	2 2	2 8	2 17
,, 7	1 4	2 0	2 13	2 17	3 4	3 10
Electro-plate, set of 4	12 8	12 12	14 0	15 0	15 15	26 4

New Illustrated Catalogue and Priced Furnishing List, gratis, and post free.

DEANE & Co., 46, King William Street, London Bridge.

FILTERS—BAD WATER—FILTERS. The reasons why the PATENT MOULDED CARBON BLOCK FILTERS, the newest and most useful invention of the age, are so successful, and are so superior to the old sponge, sand, and loose charcoal filters, are—1st. Because they cannot get foul on the inside; 2nd. They can be cleaned without being sent back to the maker; 3rd. They purify as well as filter water; Lastly, they can be adapted to a greater variety of purposes, and are cheaper in price. To enable persons to become fully acquainted with these excellent Filters, an Illustrated Catalogue, Testimonials, &c., are sent free by post on application to the Makers, Messrs. J. ATKINS and SON, 62, Fleet Street, E.C., City side Temple Bar.

"Genuine Arrowroot alone possesses all the most valuable nutritive and demulcent properties. As a diet for children, either in health or sickness, it has unquestionably no equal, and in cases of inflammatory action it is frequently indispensable."

THE COLONIAL ARROWROOT ASSOCIATION, Established by Proprietors of Estates in the West Indies, continue to import THE FINEST ARROWROOT, as certified by Dr. Lankester (Government Food Analyst), who writes—"I find it to be entirely composed of the *fecula* of the Genuine Arrowroot Plant, and of excellent quality,"—which testimony is also confirmed by Dr. Hassall, Author of "Adulterations Detected," and other Works on Food, and a copy of whose published Analysis will be given with each Package.

In Tins, 1 and 2lbs., at 1s. 6d. per lb.; 6lbs. at 1s. 4d. per lb.; 12lbs. at 1s. 3d. per lb.; or in the Original Sealed Packages, as Imported, weighing about 31lbs., at 1s. per lb.

NEVELL & CO., Sole Agents and Consignees,
Italian Warehousemen, 5, Eccleston Street, Belgravia, London, S.W.
Established 1828.

SAUCE.—LEA AND PERRINS' WORCESTERSHIRE SAUCE.

This Delicious Condiment, pronounced by Connoisseurs
"THE ONLY GOOD SAUCE,"
is prepared solely by LEA and PERRINS.

The Public are respectfully cautioned against worthless imitations, and should see that LEA and PERRINS' Names are on Wrapper, Label, Bottle, and Stopper.

ASK FOR LEA AND PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the PROPRIETORS, Worcester; Messrs. CROSSE and BLACKWELL; Messrs. BARCLAY and SON, London, &c. &c.; and by Grocers and Oilmen universally.

CAUTION.—COCKS'S CELEBRATED READING SAUCE, for Fish, Game, Steaks, Soups, Gravies, Hot and Cold Meats, and unrivalled for general use, is sold by all respectable Dealers in Sauces. It is manufactured only by the Executors of the Sole Proprietor, CHARLES COCKS, 6, DUKE STREET, READING, the Original Sauce Warehouse.

ALL OTHERS ARE SPURIOUS IMITATIONS.

GLENFIELD PATENT STARCH.—MESSRS WOTHERSPOON & CO. have been appointed Starch Purveyors to H.R.H. the PRINCESS OF WALES. This Starch is used in THE ROYAL LAUNDRY, and was awarded a PRIZE MEDAL, 1862. Sold by all Grocers, Chandlers, &c.

WOTHERSPOON & Co., Glasgow and London.

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GILBERT J. FRENCH, Bolton, Lancashire, sends, post free on application, an Illustrated CATALOGUE of his MANUFACTURES for Use in the Church of England, including full particulars of Communion Linens, Altar Cloths, Carpets, Robes, Surplices, &c. Having no authorized agents, all orders are executed exclusively at Bolton, and delivered carriage free when the railway arrangements admit of prepayment. Direct communication by letter is respectfully invited as most convenient, satisfactory, and economical.

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THRESHER'S COLOURED FLANNEL SHIRTS.

Next Door to Somerset House, Strand.

MR. HOWARD, Surgeon Dentist, 52, Fleet Street, has introduced an entirely new description of ARTIFICIAL TEETH, fixed without springs, wires, or ligatures. They so perfectly resemble the natural teeth as not to be distinguished from the originals by the closest observer. They will never change colour or decay, and will be found superior to any teeth ever before used. This method does not require the extraction of roots, or any painful operation, will support and preserve teeth that are loose, and is guaranteed to restore articulation and mastication. Decayed teeth stopped, and rendered sound and useful in mastication. —52 Fleet Street. At home from 10 till 5.

TEETH AND PAINLESS DENTISTRY.—Messrs. LEWIN MOSELY and SONS, 30, BERNERS STREET, OXFORD STREET, and 448, STRAND (Opposite Charing Cross Railway Station), Established 1820, offer to the Public a medium for supplying Artificial Teeth on a system of PAINLESS DENTISTRY. These Teeth are cheaper, more natural, comfortable, and durable, than any yet produced. They are self-adhesive, affording support to loose teeth, rendering unnecessary either wires or ligatures, require but one visit to fit, and are supplied at prices completely defying competition. Consultation free. Teeth from 5s. Sets, 5, 7, 10, and 15 Guineas, warranted. For the efficacy, utility, and success of this system, *vide* "Lancet."

*** No connection with any one of the same name.

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MR. EPHRAIM MOSELY'S IMPROVEMENTS in the CONSTRUCTION of ARTIFICIAL TEETH, Gums, and Palates (on an India-rubber base), are secured by letters patent, dated December, 1862, whereby the continual outlay of new teeth is avoided, and alterations from any cause being easily remedied, all wires and fastenings are unnecessary; sharp edges are avoided, a greatly increased freedom of suction is supplied, a natural elasticity, hitherto wholly unattainable, and a fit, perfected with the most unerring accuracy, are secured; while, from the softness and flexibility of the agents employed, the greatest support is given to the adjoining teeth when loose or rendered tender by the absorption of the gums. Consultations free.

*** NO CONNECTION WITH ANY OF THE SAME NAME.

9, GROSVENOR STREET.

THE BEST REMEDY FOR INDIGESTION.

NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for Indigestion. They act as a powerful tonic and gentle aperient, are mild in their operation, safe under any circumstances, and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the kingdom.—CAUTION! Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

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Each group, seating twenty-four, transforms into—

6 Backed Seats, 3 Level Tables, 2 Square Classes, } for 24, for { Adult Meetings, Tea Parties, Treats, Sunday Schools.

Invented for the Royal Free Schools, Windsor, and adopted in Her Majesty's Schools, Osborne, Eton College, and 400 other Schools and Colleges. Specimens at Kensington Museum, and other parts of London.

The CLERGY are respectfully invited to examine these Desks.

Illustrated Circular from ALFRED WILLIAMS, Windsor.

PARTRIDGE AND COZENS, MANUFACTURING STATIONERS, 192, FLEET STREET, corner of Chancery Lane.—Carriage paid to the Country on Orders exceeding 20s.—THE LARGEST and most varied Stock in the Kingdom of Note, Letter, and Foolscap Papers, Envelopes, Account and MS. Books, Household Papers, &c.—PARTRIDGE and COZENS' celebrated GUINEA CASE of STATIONERY forwarded free to any Railway Station in England on receipt of Post-office Order.—NO CHARGE for Plain Stamping Crests, Arms, or Address on Paper or Envelopes. Coloured Stamping (Relief) reduced to 1s. per 100. Polished Steel Crest Dies engraved for 5s. Business or Address Dies from 3s.—SCHOOL STATIONERY supplied on the most liberal terms.—Illustrated Price List of Inkstands, Despatch Boxes, Stationery Cabinets, Postage Scales, Writing Cases, &c., post free. PARTRIDGE and COZENS, 192, Fleet Street, E.C.

IMPORTANT ANNOUNCEMENT.—JOSEPH GILLOTT, METALLIC PEN-MAKER to the QUEEN, begs to inform the commercial world, scholastic institutions, and the public generally, that, by a novel application of his unrivalled machinery for making steel pens, he has introduced a new series of his useful productions which, for excellence of temper, quality of material, and, above all, cheapness in price, must ensure universal approbation, and defy competition.

Each pen bears the impress of his name as a guarantee of quality; they are put up in boxes containing one gross each, with label outside, and the fac-simile of his signature.

At the request of numerous persons engaged in tuition, J. G. has introduced his warranted school and public pens, which are especially adapted to their use, being of different degrees of flexibility, and with fine, medium, and broad points, suitable for the various kinds of writing taught in schools.

Sold retail by all stationers and booksellers. Merchants and wholesale dealers can be supplied at the works, Graham Street, Birmingham; at 91, John Street, New York; and at 37, Gracechurch Street, London.

Now ready,

PRIZE POEMS receiving the 100 Guineas offered in the Advertisements, "Ho! FOR A SHAKSPEARE!" and awarded by Messrs. Webster, J. Stirling Coyne, Andrew Halliday, George Rose, and Thomas S. Stuart. Illustrated with Lithographic Portraits of Queen Elizabeth and the Queen of Beauty. Can be had, GRATIS, at all the best drapers in the kingdom, or forwarded, on receipt of stamped address to DAY and SONS, Lithographers to the Queen, Publishers, Lincoln's Inn Fields, London.

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